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=> file hcaplu
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FILE COVERS 1907 - 19 Sep 2007  VOL 147 ISS 13
FILE LAST UPDATED: 18 Sep 2007  (20070918/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d que l24
L1              SCR 1886 AND 1923
L2              SCR 2026
L3              SCR 2027
L4              SCR 2043
L5              STR
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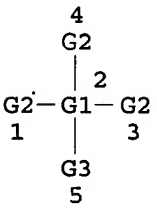

160,084 structures from query for claim 1

VAR G1=SI/GE
VAR G2=H/AK/CB/N/X
VAR G3=AK/CB/N/X
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

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L6       160084 SEA FILE=REGISTRY SSS FUL L5 AND (L1 OR L2) NOT (L3 OR L4)
L8       136023 SEA FILE=HCAPLUS ABB=ON  L6
L11        5226 SEA FILE=HCAPLUS ABB=ON  L8 AND VAPOR?(3A)DEPOSIT?
L12        1238 SEA FILE=HCAPLUS ABB=ON  L8(L)VAPOR?(L)DEPOSIT?
L13       49089 SEA FILE=HCAPLUS ABB=ON  L8(L)PREP/RL
L14          39 SEA FILE=HCAPLUS ABB=ON  L12 AND L13
L16        2373 SEA FILE=HCAPLUS ABB=ON  L11 AND FILM#/IT
L17       13470 SEA FILE=HCAPLUS ABB=ON  (METALORG?(L)DEPOSIT?(L)VAPOR?)/IT
L18          99 SEA FILE=HCAPLUS ABB=ON  L16 AND L17
L19          18 SEA FILE=HCAPLUS ABB=ON  L13 AND L18
L21          51 SEA FILE=HCAPLUS ABB=ON  L19 OR L14
L22          65 SEA FILE=HCAPLUS ABB=ON  L18 AND (1840-2003)/PRY,AY,PY
L23          45 SEA FILE=HCAPLUS ABB=ON  L21 AND (1840-2003)/PRY,AY,PY
L24          95 SEA FILE=HCAPLUS ABB=ON  L22 OR L23
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limited by utility and priority of 2003 or earlier

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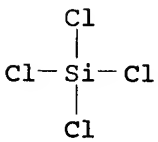
=> d 124 bib abs hitind hitstr 1-85

L24  ANSWER 1 OF 95  HCAPLUS  COPYRIGHT 2007 ACS on STN
AN   2006:871171  HCAPLUS
DN   146:153600
TI   Method of forming etch stop layer in semiconductor device to prevent
     permeation of H2 into silicon nitride layer
IN   Park, Geon Ook
PA   Dongbuanam Semiconductor Inc., S. Korea
SO   Repub. Korean Kongkae Taeho Kongbo, No pp. given
     CODEN: KRXXA7
DT   Patent
LA   Korean
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   KR 2005015665        A     20050221    KR 2003-54600          20030807 <--
PRAI KR 2003-54600                 20030807  <--
AB   A method of forming an etch stop layer in a semiconductor device is
     provided to prevent permeation of H into a Si nitride layer by using SiCl4
     as a Si source.  A semiconductor device is formed on a Si substrate.  An
     etch stop layer is formed by depositing a Si nitride on an upper surface
```

of the semiconductor device by an atomic layered deposition method using a Si source of SiCl4 and N sources of NH3 and N2O. An interlayer dielec. is formed on the etch stop layer. A contact electrode connected to an active region of the semiconductor device is formed through a contact hole which is formed by etching the interlayer dielec. and the etch stop layer.

IC ICM H01L021-20
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 48
IT Dielectric **films**
Diffusion barrier
Etch stops
Etching
Semiconductor device fabrication
(forming etch stop layer in semiconductor device to prevent permeation of hydrogen into silicon nitride layer in semiconductor device)
IT **Vapor deposition** process
(**metalorg.**, ALD; forming etch stop layer in semiconductor device to prevent permeation of hydrogen into silicon nitride layer in semiconductor device)
IT 7664-41-7, Ammonia, uses 10024-97-2, Nitrogen oxide (N2O), uses **10026-04-7**, Silicon chloride
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(forming etch stop layer in semiconductor device to prevent permeation of hydrogen into silicon nitride layer in semiconductor device)
IT **10026-04-7**, Silicon chloride
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(forming etch stop layer in semiconductor device to prevent permeation of hydrogen into silicon nitride layer in semiconductor device)
RN 10026-04-7 HCAPLUS
CN Silane, tetrachloro- (CA INDEX NAME)



L24 ANSWER 2 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:569344 HCAPLUS
DN 143:88927
TI Cyclopentadienylsilyl(tert-butyl)amines showing good step coverage, their solutions, and formation of silicon-containing films
IN Itsuki, Atsushi
PA Mitsubishi Materials Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2005170870	A	20050630	JP 2003-414366	20031212 <--
PRAI JP 2003-414366		20031212 <--		

OS MARPAT 143:88927
AB Cyclopentadienylsilyl(tert-butyl)amine are C5H4R1SiHR2NHCMe3 (I; R1, R2 =

H, C1-4 alkyl). The films showing good adhesion to substrates are formed, preferably by MOCVD using I or their solns.

IC ICM C07F007-10
ICS C23C016-42; H01L021-316

CC 76-3 (Electric Phenomena)
Section cross-reference(s): 29

IT **Vapor deposition** process
(**metalorg.**; formation of Si-containing **films** by MOCVD using cyclopentadienylsilyl(tert-butyl)amines showing good step coverage or their solns.)

IT **854937-33-0P 854937-34-1P 854937-35-2P**
854937-36-3P 854937-37-4P 855006-89-2P
855006-90-5P 855006-92-7P 855006-93-8P
855006-95-0P 855006-97-2P 855006-98-3P
855007-00-0P 855007-01-1P 855007-02-2P
855007-03-3P 855007-04-4P 855007-05-5P
855007-06-6P 855007-07-7P 855007-08-8P
855007-09-9P 855007-10-2P 855007-11-3P
855007-12-4P
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); **PREP (Preparation)**; PROC (Process)
(formation of Si-containing **films** by MOCVD using cyclopentadienylsilyl(tert-butyl)amines showing good step coverage or their solns.)

IT 12033-89-5P, Silicon nitride, preparation 163332-36-3P, Hafnium silicon oxide
RL: IMF (Industrial manufacture); PREP (Preparation)
(formation of Si-containing **films** by MOCVD using cyclopentadienylsilyl(tert-butyl)amines showing good step coverage or their solns.)

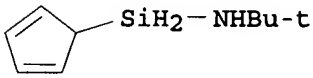
IT 74-98-6, Propane, reactions 75-28-5 542-92-7, Cyclopentadiene, reactions 26519-91-5, Methylcyclopentadiene 26519-92-6, Ethylcyclopentadiene 27288-07-9, Propylcyclopentadiene 90317-56-9, Butylcyclopentadiene 854937-32-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(formation of Si-containing **films** by MOCVD using cyclopentadienylsilyl(tert-butyl)amines showing good step coverage or their solns.)

IT 79-20-9, Methyl acetate 108-87-2, Methylcyclohexane 109-99-9, Tetrahydrofuran, uses 110-54-3, Hexane, uses 110-82-7, Cyclohexane, uses 110-86-1, Pyridine, uses 111-65-9, N-Octane, uses 123-86-4, Butyl acetate 141-78-6, Ethyl acetate, uses 540-84-1, Isooctane 628-63-7, Amyl acetate 1678-91-7, Ethyl cyclohexane 25265-68-3, Methyl tetrahydrofuran 27175-64-0, Lutidine
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; formation of Si-containing **films** by MOCVD using cyclopentadienylsilyl(tert-butyl)amines showing good step coverage or their solns.)

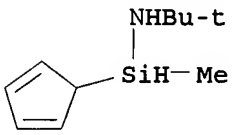
IT **854937-33-0P 854937-34-1P 854937-35-2P**
854937-36-3P 854937-37-4P 855006-89-2P
855006-90-5P 855006-92-7P 855006-93-8P
855006-95-0P 855006-97-2P 855006-98-3P
855007-00-0P 855007-01-1P 855007-02-2P
855007-03-3P 855007-04-4P 855007-05-5P
855007-06-6P 855007-07-7P 855007-08-8P
855007-09-9P 855007-10-2P 855007-11-3P
855007-12-4P
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); **PREP (Preparation)**; PROC

(Process)
(formation of Si-containing **films** by MOCVD using cyclopentadienylsilyl(tert-butyl)amines showing good step coverage or their solns.)

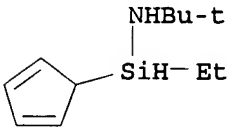
RN 854937-33-0 HCAPLUS
CN Silanamine, 1-(2,4-cyclopentadien-1-yl)-N-(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



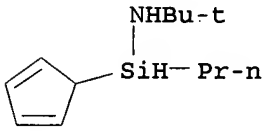
RN 854937-34-1 HCAPLUS
CN Silanamine, 1-(2,4-cyclopentadien-1-yl)-N-(1,1-dimethylethyl)-1-methyl- (9CI) (CA INDEX NAME)



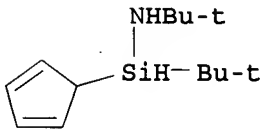
RN 854937-35-2 HCAPLUS
CN Silanamine, 1-(2,4-cyclopentadien-1-yl)-N-(1,1-dimethylethyl)-1-ethyl- (9CI) (CA INDEX NAME)



RN 854937-36-3 HCAPLUS
CN Silanamine, 1-(2,4-cyclopentadien-1-yl)-N-(1,1-dimethylethyl)-1-propyl- (9CI) (CA INDEX NAME)



RN 854937-37-4 HCAPLUS
CN Silanamine, 1-(2,4-cyclopentadien-1-yl)-N,1-bis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



RN 855006-89-2 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-(methylcyclopentadienyl)- (9CI) (CA INDEX NAME)

D1—Me

t-BuNH—SiH_2—D1

RN 855006-90-5 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-(ethylcyclopentadienyl)- (9CI) (CA INDEX NAME)

D1—Et

t-BuNH—SiH_2—D1

RN 855006-92-7 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-(propylcyclopentadienyl)- (9CI) (CA INDEX NAME)

D1—Pr-n

t-BuNH—SiH_2—D1

RN 855006-93-8 HCAPLUS

CN Silanamine, N-(1,1-dimethylethyl)-1-[(1,1-dimethylethyl)cyclopentadienyl]-
(9CI) (CA INDEX NAME)

D1—Bu-t

t-BuNH—SiH_2—D1

RN 855006-95-0 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-methyl-1-(methylcyclopentadienyl)-
(9CI) (CA INDEX NAME)

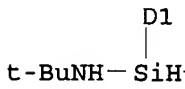
D1—Me

RN 855006-97-2 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-(ethylcyclopentadienyl)-1-methyl-
(9CI) (CA INDEX NAME)

D1—Et

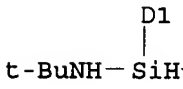
RN 855006-98-3 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-methyl-1-(propylcyclopentadienyl)-
(9CI) (CA INDEX NAME)

D1— Pr-n



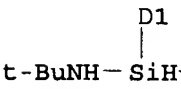
RN 855007-00-0 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-[(1,1-dimethylethyl)cyclopentadienyl]-1-methyl- (9CI) (CA INDEX NAME)

D1— Bu-t



RN 855007-01-1 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-ethyl-1-(methylcyclopentadienyl)- (9CI) (CA INDEX NAME)

D1— Me

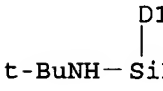


RN 855007-02-2 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-ethyl-1-(ethylcyclopentadienyl)- (9CI) (CA INDEX NAME)

D1— Et

RN 855007-03-3 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-ethyl-1-(propylcyclopentadienyl)-
(9CI) (CA INDEX NAME)

D1— Pr-n



RN 855007-04-4 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-[(1,1-dimethylethyl)cyclopentadienyl]-
1-ethyl- (9CI) (CA INDEX NAME)

D1— Bu-t

RN 855007-05-5 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-(methylcyclopentadienyl)-1-propyl-
(9CI) (CA INDEX NAME)

D1— Me

t-BuNH— SiH— Pr-n

RN 855007-06-6 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-(ethylcyclopentadienyl)-1-propyl- (9CI) (CA INDEX NAME)

D1— Et

t-BuNH— SiH— Pr-n

RN 855007-07-7 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-propyl-1-(propylcyclopentadienyl)- (9CI) (CA INDEX NAME)

D1— Pr-n

t-BuNH— SiH— Pr-n

RN 855007-08-8 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1-[(1,1-dimethylethyl)cyclopentadienyl]- 1-propyl- (9CI) (CA INDEX NAME)

D1—Bu-t

D1
|
t-BuNH—SiH—Pr-n

RN 855007-09-9 HCAPLUS
CN Silanamine, N,1-bis(1,1-dimethylethyl)-1-(methylcyclopentadienyl)- (9CI) (CA INDEX NAME)

D1—Me

D1
|
t-BuNH—SiH—Bu-t

RN 855007-10-2 HCAPLUS
CN Silanamine, N,1-bis(1,1-dimethylethyl)-1-(ethylcyclopentadienyl)- (9CI) (CA INDEX NAME)

D1—Et

D1
|
t-BuNH—SiH—Bu-t

RN 855007-11-3 HCAPLUS
CN Silanamine, N,1-bis(1,1-dimethylethyl)-1-(propylcyclopentadienyl)- (9CI) (CA INDEX NAME)

D1— Pr-n

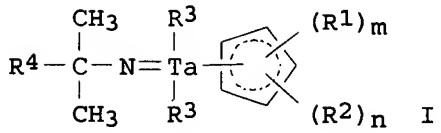
RN 855007-12-4 HCAPLUS
CN Silanamine, N,1-bis(1,1-dimethylethyl)-1-[(1,1-dimethylethyl)cyclopentadienyl]- (9CI) (CA INDEX NAME)

D1— Bu-t

L24 ANSWER 3 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:449671 HCAPLUS
DN 142:491921
TI Tantalum amide imides showing low reactivity to water, their manufacture, and formation of tantalum-containing thin films by CVD using them
IN Sekimoto, Kenichi; Oshima, Noriaki; Yamakawa, Akira; Tada, Kenichi
PA Tosoh Corp., Japan; Sagami Chemical Research Center
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005132757	A	20050526	JP 2003-368974	20031029 <--
PRAI JP 2003-368974		20031029 <--		

OS MARPAT 142:491921
GI



I

AB Title compds. I (R1 = C1-3 alkyl; R2 = C1-5 alkyl, C3-4 trialkylsilyl; R3 = C1-6 alkyl, C3-4 trialkylsilylmethyl; R4 = Me, Et; m = 0-5; n = 0-3; m + n ≤5) other than compds. I (R1 = R2 = Me, R3, R4 = same as above; m + n = 4 or 5) are manufactured by treatment of Ta halide imides II (R1 = C1-3 alkyl; R2 = C1-5 alkyl, C3-4 trialkylsilyl; R4 = Me, Et; Z = Cl, Br, iodide; m = 0-5; n = 0-3; m + n ≤5) with R3MgX or R3Li (R3 = same as above, X = Cl, Br, iodide). The compds. are useful as sources for O-free TaN diffusion barrier films for semiconductor devices.

IC ICM C07F009-00
ICS C23C016-34; H01L021-28; H01L021-285

CC 76-3 (Electric Phenomena)
Section cross-reference(s): 29

IT Semiconductor devices
(TaN diffusion barrier **films**; manufacture of Ta amide imides showing low reactivity to water for formation of Ta-containing thin **films** by CVD)

IT **Vapor deposition** process
(**metalorg.**; manufacture of Ta amide imides showing low reactivity to water for formation of Ta-containing thin **films** by CVD)

IT 852211-94-0P
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(manufacture of Ta amide imides showing low reactivity to water for formation of Ta-containing thin **films** by CVD)

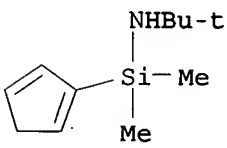
IT 12033-62-4P, Tantalum nitride (TaN) 852211-95-1P 852211-96-2P
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of Ta amide imides showing low reactivity to water for formation of Ta-containing thin **films** by CVD)

IT 75-16-1, Methylmagnesium bromide 119057-26-0 **161423-56-9**
RL: RCT (Reactant); RACT (Reactant or reagent)
(manufacture of Ta amide imides showing low reactivity to water for formation of Ta-containing thin **films** by CVD)

IT **161423-56-9**
RL: RCT (Reactant); RACT (Reactant or reagent)
(manufacture of Ta amide imides showing low reactivity to water for formation of Ta-containing thin **films** by CVD)

RN 161423-56-9 HCAPLUS

CN Silanamine, 1-(1,4-cyclopentadien-1-yl)-N-(1,1-dimethylethyl)-1,1-dimethyl- (9CI) (CA INDEX NAME)



L24 ANSWER 4 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:35055 HCAPLUS

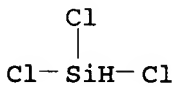
DN 142:146656
TI Chemical vapor deposition process for forming a low-k dielectric material on a semiconductor substrate
IN Rantala, Juha
PA Silecs Oy, Finland
SO PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005004221	A2	20050113	WO 2004-FI440	20040708 <--
	WO 2005004221	A3	20050602		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2007190800	A1	20070816	US 2007-563801	20070305 <--
PRAI	US 2003-485114P	P	20030708 <--		
	US 2003-531672P	P	20031223 <--		
	WO 2004-FI440	W	20040708		

AB Method for forming a low dielec. constant structure on a semiconductor substrate by CVD processing. The method comprises using a precursor containing chemical compound having the formula of (R1-R2)n-Si-(X1)4-n, in which X1 is H, halogen, acyloxy, alkoxy or OH group; R2 is an optional group and comprises an aromatic group having 6 C atoms; R1 is a substituent at position 4 of R2 selected from an alkyl group having from 1-4 C atoms, an alkenyl group having from 2-5 C atoms, an alkynyl group having from 2-5 C atoms, Cl or F; and n is an integer 1-3. The present precursors allow for a lowering of the electronic dielec. constant compared to conventional dielec. materials, such as SiO2 or phenyl-modified organo-containing SiO2.

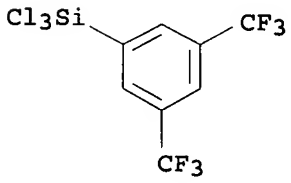
IC ICM H01L021-312
ICS C23C016-40
CC 76-10 (Electric Phenomena)
IT 78-10-4, Tetraethoxy silane 328-70-1, 3,5-Bis(trifluoromethyl)phenyl bromide 402-43-7, 4-(Trifluoromethyl)phenyl bromide 1765-40-8, Pentafluorophenylmethyl bromide **10025-78-2**, Trichlorosilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(chemical **vapor deposition** process for forming a low-k dielec. material on a semiconductor substrate)
IT **328-76-7P 7375-63-5P 13235-91-1P**
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(**vapor deposition** precursor; chemical **vapor deposition** process for forming a low-k dielec. material on a semiconductor substrate)
IT **10025-78-2**, Trichlorosilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(chemical **vapor deposition** process for forming a low-k dielec. material on a semiconductor substrate)
RN 10025-78-2 HCAPLUS

CN Silane, trichloro- (CA INDEX NAME)

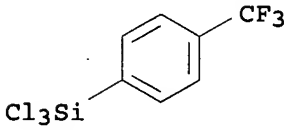


IT **328-76-7P 7375-63-5P 13235-91-1P**
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(vapor deposition precursor; chemical **vapor deposition** process for forming a low-k dielec. material on a semiconductor substrate)

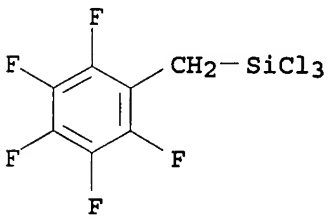
RN 328-76-7 HCAPLUS
CN Silane, [3,5-bis(trifluoromethyl)phenyl]trichloro- (8CI, 9CI) (CA INDEX NAME)



RN 7375-63-5 HCAPLUS
CN Silane, trichloro[4-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 13235-91-1 HCAPLUS
CN Silane, trichloro[(pentafluorophenyl)methyl]- (9CI) (CA INDEX NAME)



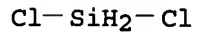
L24 ANSWER 5 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:1035134 HCAPLUS
DN 142:31347
TI Process for forming a thin film of TiSiN, in particular for phase change memory devices
IN Zonca, Romina
PA STMicroelectronics S.R.L., Italy; Ovonyx Inc.

SO Eur. Pat. Appl., 9 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1482551	A1	20041201	EP 2003-425337	20030526 <--
EP 1482551	B1	20070207		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2005006722	A1	20050113	US 2004-853015	20040525 <--
US 7253108	B2	20070807		
PRAI EP 2003-425337	A	20030526 <--		

AB The invention relates to a process for making a thin film of TiSiN, including the following sequence of steps: deposition of a TiN film at medium temperature, for example, 300-450°, by thermal decomposition of a organometal, for example TDMAT; exposition to a silicon releasing gas, such as silane and dichlorosilane at 10-90 sccm standard cc/min for a quite long time, for example, longer than 10 s but less than 90 s, preferably about 40 s; exposition to a H2/N2 plasma at 200-800 sccm, for 10-90 s, preferably about 40 s.

IC ICM H01L021-768
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 74
IT Semiconductor memory devices
(MOCVD of TiSiN thin **film** for phase change memory device)
IT **Vapor deposition** process
(**metalorg.**; MOCVD of TiSiN thin **film** for phase change memory device)
IT 3275-24-9, Tetrakis(dimethylamino) Titanium **4109-96-0**, Dichlorosilane 7803-62-5, Silane, processes 11116-16-8, Titanium nitride 121368-53-4, Titanium nitride silicide
RL: DEV (Device component use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(MOCVD of TiSiN thin **film** for phase change memory device)
IT **4109-96-0**, Dichlorosilane
RL: DEV (Device component use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(MOCVD of TiSiN thin **film** for phase change memory device)
RN 4109-96-0 HCAPLUS
CN Silane, dichloro- (CA INDEX NAME)



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 6 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:822918 HCAPLUS
DN 141:314444
TI Organometallic compounds suitable for use in **vapor deposition** processes
IN Shenai-Khatkhate, Deodatta Vinayak; Power, Michael Brendan
PA Rohm and Haas Electronic Materials, L.L.C., USA
SO Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DT Patent

LA English
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1464724	A2	20041006	EP 2004-251948	20040401 <--
	EP 1464724	A3	20070110		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	JP 2004308007	A	20041104	JP 2004-99110	20040330 <--
	US 2004194703	A1	20041007	US 2004-817618	20040402 <--
	KR 2004086811	A	20041012	KR 2004-22845	20040402 <--
	SG 126757	A1	20061129	SG 2004-1872	20040402 <--
	CN 1584108	A	20050223	CN 2004-10055267	20040405 <--
	US 2007077733	A1	20070405	US 2006-604475	20061127 <--
PRAI	US 2003-460791P	P	20030405 <--		
	US 2003-513476P	P	20031022 <--		
	US 2003-513475P	P	20031022 <--		
	US 2004-816356	A3	20040402		

OS CASREACT 141:314444; MARPAT 141:314444

AB Organometallic compds. suitable for use as **vapor** phase **deposition** precursors for Group IV metal-containing films are provided. Methods of depositing Group IV metal-containing films using certain organometallic precursors are also provided. Thus, reduction of (Me2N)2GeCl2 with LiAlH4 in Bu2O gave title compound, (Me2N)2GeH2. Such Group IV metal-containing films are particularly useful in the manufacture of electronic devices.

IC ICM C23C016-22
ICS C07F007-30; C07F007-02

CC 29-8 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 76

ST Group IV organometallic compd prepn suitable **vapor deposition**

IT **Vapor deposition** process
(**metalorg.**; preparation of Group IV organometallic compds. suitable for use in **vapor deposition** processes)

IT **Films**
(preparation of Group IV organometallic compds. suitable for use in **vapor deposition** processes)

IT Group IVA element compounds
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation of Group IV organometallic compds. suitable for use in **vapor deposition** processes)

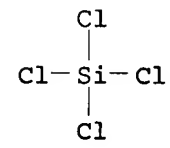
IT 677-22-5, tert-Butylmagnesium chloride 811-49-4, Ethyllithium 925-90-6, Ethylmagnesium bromide 993-10-2, Methylgermanium trichloride 1068-55-9, Isopropylmagnesium chloride 1529-47-1, Chlorotrimethylgermane 2234-82-4, Propylmagnesium chloride 3585-33-9, Lithium dimethylamide **10026-04-7**, Silicon tetrachloride 10038-98-9, Germanium tetrachloride 154034-91-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of Group IV organometallic compds. suitable for use in **vapor deposition** processes)

IT **115-21-9P**, Ethylsilicon trichloride 993-42-0P, Ethylgermanium trichloride **13307-04-5P 13328-30-8P** 24422-23-9P 24422-24-0P **67859-79-4P** 769120-68-5P
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation of Group IV organometallic compds. suitable for use in **vapor deposition** processes)

IT **75-78-5P 766-06-3P** 1066-60-0P **1116-62-7P**
1118-01-0P 1184-92-5P 1590-87-0P, Disilane **1631-71-6P**
1747-99-5P 2167-44-4P **2372-31-8P** 2814-23-5P 2816-48-0P
2875-98-1P 3768-58-9P 4109-96-0P,
Dichlorosilane **4693-04-3P 7291-09-0P**
7387-25-9P 13154-24-0P 13391-74-7P
13892-14-3P **15112-89-7P 18165-85-0P**
18191-59-8P 18230-84-7P 18388-68-6P
22064-46-6P **27804-64-4P 30736-07-3P** 33684-19-4P
33816-59-0P 34292-00-7P **36091-75-5P 56348-24-4P**
67685-65-8P **76392-79-5P** 82236-94-0P 88497-01-2P
113801-95-9P 124446-05-5P 149540-54-5P **153843-67-5P**
768403-84-5P 768403-87-8P 768403-89-0P 769120-69-6P 769120-70-9P
769120-71-0P 769120-72-1P 769120-73-2P 769120-74-3P 769120-75-4P
769120-76-5P 769120-77-6P 769120-78-7P 769120-79-8P 769120-80-1P
769120-81-2P **769120-82-3P 769120-83-4P**
769120-84-5P 769120-85-6P 769120-86-7P
769120-87-8P 769120-88-9P 769120-89-0P
769120-90-3P 769120-91-4P 769120-92-5P
769120-93-6P **769120-94-7P**
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; RACT (Reactant or reagent); USES (Uses)
(preparation of Group IV organometallic compds. suitable for use in **vapor deposition** processes)

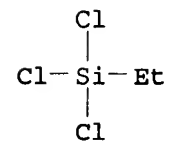
IT **10026-04-7**, Silicon tetrachloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of Group IV organometallic compds. suitable for use in **vapor deposition** processes)

RN 10026-04-7 HCAPLUS
CN Silane, tetrachloro- (CA INDEX NAME)

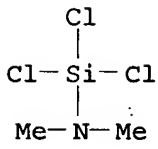


IT **115-21-9P**, Ethylsilicon trichloride **13307-04-5P**
13328-30-8P 67859-79-4P
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation of Group IV organometallic compds. suitable for use in **vapor deposition** processes)

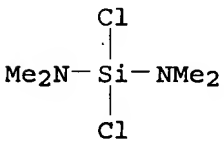
RN 115-21-9 HCAPLUS
CN Silane, trichloroethyl- (CA INDEX NAME)



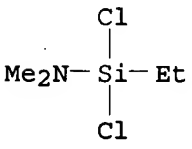
RN 13307-04-5 HCAPLUS
CN Silanamine, 1,1,1-trichloro-N,N-dimethyl- (9CI) (CA INDEX NAME)



RN 13328-30-8 HCAPLUS
CN Silanediamine, 1,1-dichloro-N,N,N',N'-tetramethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

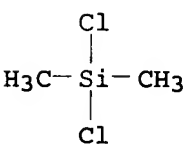


RN 67859-79-4 HCAPLUS
CN Silanamine, 1,1-dichloro-1-ethyl-N,N-dimethyl- (CA INDEX NAME)



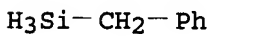
IT **75-78-5P 766-06-3P 1116-62-7P**
1631-71-6P 2372-31-8P 2875-98-1P
3768-58-9P 4109-96-0P, Dichlorosilane **4693-04-3P**
7291-09-0P 7387-25-9P 13154-24-0P
13391-74-7P 15112-89-7P 18165-85-0P
18191-59-8P 18230-84-7P 18388-68-6P
27804-64-4P 30736-07-3P 36091-75-5P
56348-24-4P 76392-79-5P 153843-67-5P
769120-82-3P 769120-83-4P 769120-84-5P
769120-85-6P 769120-86-7P 769120-87-8P
769120-88-9P 769120-89-0P 769120-90-3P
769120-91-4P 769120-92-5P 769120-94-7P
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; RACT (Reactant or reagent); USES (Uses)
(preparation of Group IV organometallic compds. suitable for use in **vapor deposition** processes)

RN 75-78-5 HCAPLUS
CN Silane, dichlorodimethyl- (CA INDEX NAME)

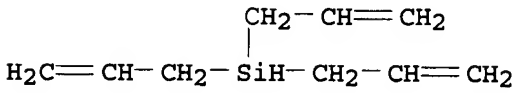


RN 766-06-3 HCAPLUS

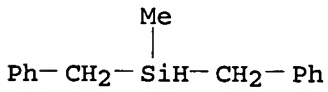
CN Benzene, (silylmethyl)- (CA INDEX NAME)



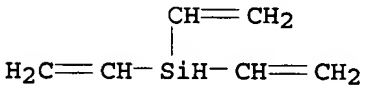
RN 1116-62-7 HCAPLUS
CN Silane, tri-2-propenyl- (9CI) (CA INDEX NAME)



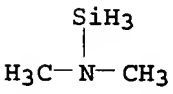
RN 1631-71-6 HCAPLUS
CN Silane, methylbis(phenylmethyl)- (9CI) (CA INDEX NAME)



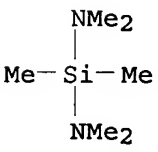
RN 2372-31-8 HCAPLUS
CN Silane, triethenyl- (CA INDEX NAME)



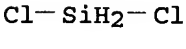
RN 2875-98-1 HCAPLUS
CN Silanamine, N,N-dimethyl- (9CI) (CA INDEX NAME)



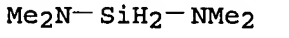
RN 3768-58-9 HCAPLUS
CN Silanediamine, N,N,N',N',1,1-hexamethyl- (CA INDEX NAME)



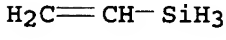
RN 4109-96-0 HCAPLUS
CN Silane, dichloro- (CA INDEX NAME)



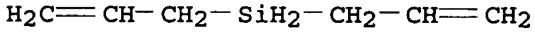
RN 4693-04-3 HCAPLUS
CN Silanediamine, N,N,N',N'-tetramethyl- (CA INDEX NAME)



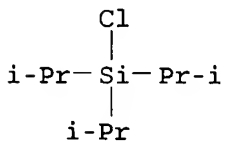
RN 7291-09-0 HCAPLUS
CN Silane, ethenyl- (9CI) (CA INDEX NAME)



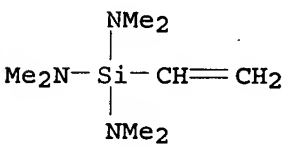
RN 7387-25-9 HCAPLUS
CN Silane, di-2-propenyl- (9CI) (CA INDEX NAME)



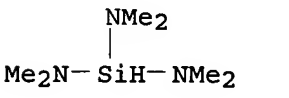
RN 13154-24-0 HCAPLUS
CN Silane, chlorotris(1-methylethyl)- (CA INDEX NAME)



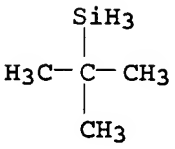
RN 13391-74-7 HCAPLUS
CN Silanetriamine, 1-ethenyl-N,N,N',N',N'',N''-hexamethyl- (9CI) (CA INDEX NAME)



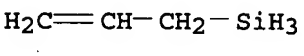
RN 15112-89-7 HCAPLUS
CN Silanetriamine, N,N,N',N',N'',N''-hexamethyl- (CA INDEX NAME)



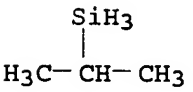
RN 18165-85-0 HCAPLUS
CN Silane, (1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



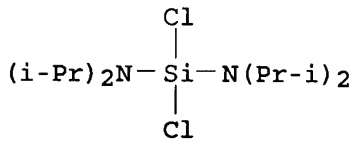
RN 18191-59-8 HCAPLUS
CN Silane, 2-propenyl- (9CI) (CA INDEX NAME)



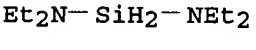
RN 18230-84-7 HCAPLUS
CN Silane, (1-methylethyl)- (9CI) (CA INDEX NAME)



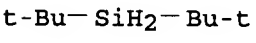
RN 18388-68-6 HCAPLUS
CN Silanediamine, 1,1-dichloro-N,N,N',N'-tetrakis(1-methylethyl)- (9CI) (CA INDEX NAME)



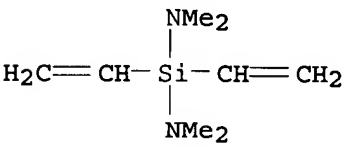
RN 27804-64-4 HCAPLUS
CN Silanediamine, N,N,N',N'-tetraethyl- (CA INDEX NAME)



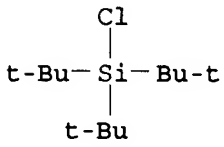
RN 30736-07-3 HCAPLUS
CN Silane, bis(1,1-dimethylethyl)- (CA INDEX NAME)



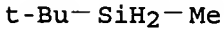
RN 36091-75-5 HCAPLUS
CN Silanediamine, 1,1-diethenyl-N,N,N',N'-tetramethyl- (9CI) (CA INDEX NAME)



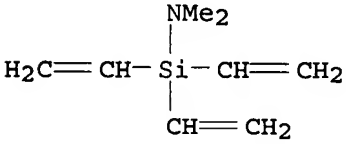
RN 56348-24-4 HCAPLUS
CN Silane, chlorotris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



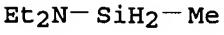
RN 76392-79-5 HCAPLUS
CN Silane, (1,1-dimethylethyl)methyl- (9CI) (CA INDEX NAME)



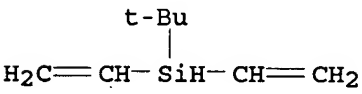
RN 153843-67-5 HCAPLUS
CN Silanamine, 1,1,1-triethenyl-N,N-dimethyl- (9CI) (CA INDEX NAME)



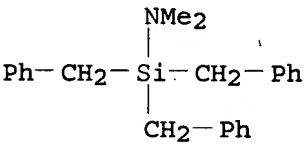
RN 769120-82-3 HCAPLUS
CN Silanamine, N,N-diethyl-1-methyl- (9CI) (CA INDEX NAME)



RN 769120-83-4 HCAPLUS
CN Silane, (1,1-dimethylethyl)diethenyl- (9CI) (CA INDEX NAME)



RN 769120-84-5 HCAPLUS
CN Silanamine, N,N-dimethyl-1,1,1-tris(phenylmethyl)- (9CI) (CA INDEX NAME)



RN 769120-85-6 HCAPLUS
CN Silanamine, 1-(1,1-dimethylethyl)-N,N-dimethyl- (9CI) (CA INDEX NAME)

$Me_2N-SiH_2-Bu\text{-}t$

RN 769120-86-7 HCAPLUS
CN Silane, (1,1-dimethylethyl)ethyl- (9CI) (CA INDEX NAME)

$Et-SiH_2-Bu\text{-}t$

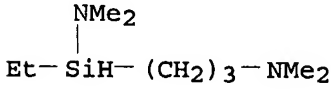
RN 769120-87-8 HCAPLUS
CN Ethanamine, 2,2'-silylenebis[N,N-dimethyl- (9CI) (CA INDEX NAME)

$Me_2N-CH_2-CH_2-SiH_2-CH_2-CH_2-NMe_2$

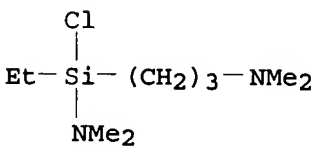
RN 769120-88-9 HCAPLUS
CN Silanamine, 1-[3-(dimethylamino)propyl]-N,N-dimethyl- (9CI) (CA INDEX NAME)

$Me_2N-SiH_2-(CH_2)_3-NMe_2$

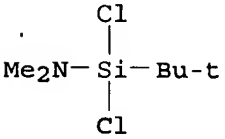
RN 769120-89-0 HCAPLUS
CN Silanamine, 1-[3-(dimethylamino)propyl]-1-ethyl-N,N-dimethyl- (9CI) (CA INDEX NAME)



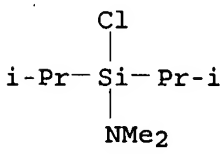
RN 769120-90-3 HCAPLUS
CN Silanamine, 1-chloro-1-[3-(dimethylamino)propyl]-1-ethyl-N,N-dimethyl- (9CI) (CA INDEX NAME)



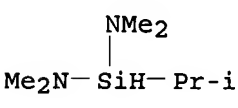
RN 769120-91-4 HCAPLUS
CN Silanamine, 1,1-dichloro-1-(1,1-dimethylethyl)-N,N-dimethyl- (9CI) (CA INDEX NAME)



RN 769120-92-5 HCAPLUS
CN Silanamine, 1-chloro-N,N-dimethyl-1,1-bis(1-methylethyl)- (9CI) (CA INDEX NAME)



RN 769120-94-7 HCAPLUS
CN Silanediamine, N,N,N',N'-tetramethyl-1-(1-methylethyl)- (9CI) (CA INDEX NAME)



L24 ANSWER 7 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:803797 HCAPLUS
DN 141:305815
TI Poly(organosiloxane) materials and methods for hybrid organic-inorganic dielectrics for integrated circuit applications
IN Rantala, Juha T.; Reid, Jason S.; Tormanen, T. Teemu T.; Viswanathan, Nungavram S.; Maaninen, Arto L. t.
PA Silecs Oy, Finland
SO U.S. Pat. Appl. Publ., 52 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 6

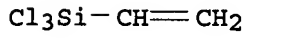
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004188713	A1	20040930	US 2003-346539	20030117 <--
	US 7144827	B2	20061205		
	US 2005032357	A1	20050210	US 2004-886061	20040708 <--
	US 2007077779	A1	20070405	US 2006-606941	20061201 <--
PRAI	US 2002-349734P	P	20020117 <--		
	US 2002-349873P	P	20020117 <--		
	US 2002-349955P	P	20020117 <--		
	US 2002-395418P	P	20020713 <--		
	US 2002-414578P	P	20020927 <--		
	US 2003-346449	A2	20030117 <--		
	US 2003-346450	A2	20030117 <--		
	US 2003-346451	A2	20030117 <--		
	US 2003-346539	A2	20030117 <--		

AB A method for making an integrated circuit is disclosed as comprising depositing alternating regions of elec. conductive and dielec. materials on a substrate, wherein an area of dielec. material is formed by: a silane precursor having a fully or partially fluorinated 1st organic group comprising an unsatd. C-C double bond, the fully or partially fluorinated organic group bound to Si in the silane precursor; forming from the silane precursor a hybrid organic-inorg. material having a mol. weight of at least 500 on a substrate; and increasing the mol. weight of the hybrid material by exposure to heat, electromagnetic radiation or electron beam so as to

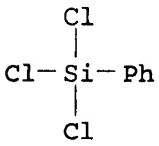
break the unsatd. C-C double bond and cross link via the fully or partially fluorinated organic group. Also disclosed is a method for making an integrated circuit is disclosed as comprising: reacting a compound X3MOR33 , where X3 is a halogen, M is Si, and OR3 is alkoxy; with a compound R1M1; where R1 is selected from alkyl, alkenyl, aryl and alkynyl and wherein R1 is partially or 1 fully fluorinated; and M1 is an element from Group 1A of the periodic table; so as to form a compound R1MOR33; hydrolyzing and condensing R1MOR33 so as to form a hybrid organic-inorg. material with a mol. weight of at least 500; depositing the hybrid organic-inorg. material on a substrate as an insulator in an integrated circuit; depositing, before or after depositing the hybrid material, an elec. conductive material within the integrated circuit. Also disclosed is a method for making an integrated circuit comprising forming alternating areas of elec. conductive and dielec. materials, the dielec. materials formed by hydrolyzing, partially or fully, one or more precursors, at least one of which (R2)3M1R1M3(R2)3: where R2 is a halogen, -OH, or alkoxy group, where M3 and M3 are independently a metal or metalloid, and where R1 is a fully or partially fluorinated alkyl group having from 1 to 10 C atoms or a fully or partially fluorinated aromatic group.

IC ICM H01L031-0336
INCL 257200000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 35, 38
IT **Vapor deposition** process
(chemical; preparation of alkoxysilane derivs.)
IT **Vapor deposition** process
(**metalorg.**; preparation of alkoxysilane derivs.)
IT Dielectric **films**
Hybrid organic-inorganic materials
Integrated circuits
(poly(organosiloxane) materials and methods for hybrid organic-inorg. dielecs. for integrated circuit applications)
IT **75-94-5**, Vinyltrichlorosilane 78-08-0, Vinyltriethoxysilane 78-10-4, TEOS 79-38-9, Chlorotrifluoroethylene **98-13-5**, Phenyltrichlorosilane 335-48-8, 1,4-Dibromooctafluorobutane 344-03-6, 1,4-Dibromotetrafluorobenzene 344-04-7, Pentafluorobromobenzene 344-07-0, Chloropentafluorobenzene 423-55-2, 1-Bromoperfluorooctane 507-63-1, 1-Iodoperfluorooctane 594-19-4 1185-55-3, Methyltrimethoxysilane 4667-99-6, Chlorotriethoxysilane 7446-81-3, Sodium acrylate 14165-55-0, Tetraethoxygermane 17823-46-0 27041-17-4, 2-Bromoperfluoronaphthalene 85737-06-0 101947-16-4, 1H,1H,2H,2H-Perfluorodecyltriethoxysilane
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(preparation of alkoxysilane derivs.)
IT **359-51-3P** 5700-28-7P **20160-39-8P 20160-45-6P** **21980-43-8P**, Methyl(pentafluorophenyl)dichlorosilane **25202-33-9P**, Pentafluorophenylvinyldichlorosilane 51989-69-6P 69656-69-5P **220791-24-2P**, Perfluorooctyltrichlorosilane 561069-05-4P **561069-07-6P 561069-10-1P** **561069-12-3P 561069-15-6P** 561069-16-7P **561069-17-8P** 561069-18-9P **561069-19-0P** **561069-20-3P 635676-93-6P** 765292-29-3P 765292-36-2P 765292-38-4P 765292-40-8P 765292-42-0P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(preparation of alkoxysilane derivs.)
IT **75-94-5**, Vinyltrichlorosilane **98-13-5**, Phenyltrichlorosilane

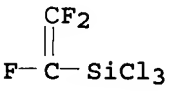
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(preparation of alkoxysilane derivs.)
RN 75-94-5 HCAPLUS
CN Silane, trichloroethenyl- (CA INDEX NAME)



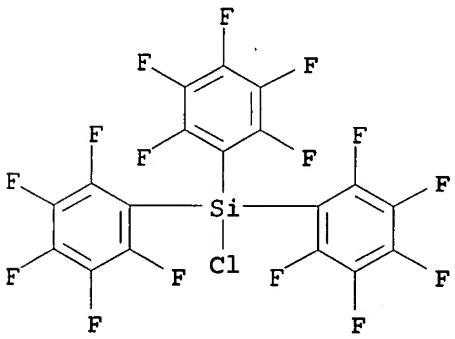
RN 98-13-5 HCAPLUS
CN Benzene, (trichlorosilyl)- (CA INDEX NAME)



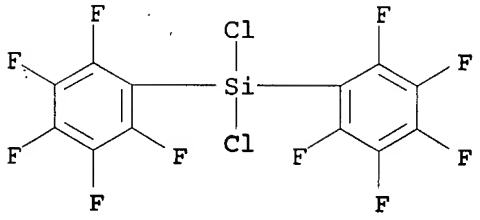
IT **359-51-3P 20160-39-8P 20160-45-6P**
21980-43-8P, Methyl(pentafluorophenyl)dichlorosilane
25202-33-9P, Pentafluorophenylvinyldichlorosilane
220791-24-2P, Perfluorooctyltrichlorosilane **561069-07-6P**
561069-10-1P 561069-12-3P 561069-15-6P
561069-17-8P 561069-19-0P 561069-20-3P
635676-93-6P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(preparation of alkoxysilane derivs.)
RN 359-51-3 HCAPLUS
CN Silane, trichloro(trifluoroethenyl)- (9CI) (CA INDEX NAME)



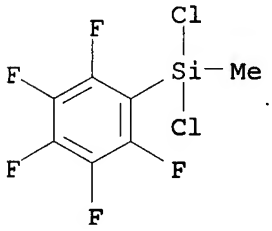
RN 20160-39-8 HCAPLUS
CN Silane, chlorotris(pentafluorophenyl)- (8CI, 9CI) (CA INDEX NAME)



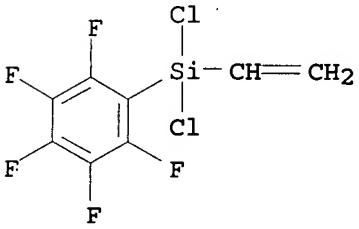
RN 20160-45-6 HCAPLUS
CN Silane, dichlorobis(pentafluorophenyl)- (8CI, 9CI) (CA INDEX NAME)



RN 21980-43-8 HCAPLUS
CN Silane, dichloromethyl(pentafluorophenyl)- (8CI, 9CI) (CA INDEX NAME)



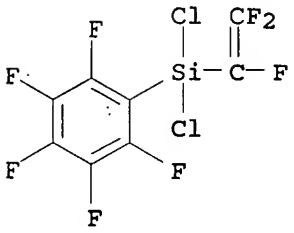
RN 25202-33-9 HCAPLUS
CN Silane, dichloroethenyl(pentafluorophenyl)- (9CI) (CA INDEX NAME)



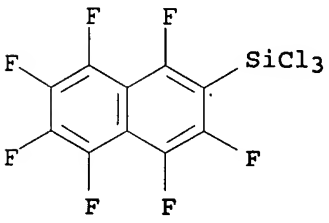
RN 220791-24-2 HCAPLUS
CN Silane, trichloro(1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctyl)-
(CA INDEX NAME)

$Cl_3Si-(CF_2)_7-CF_3$

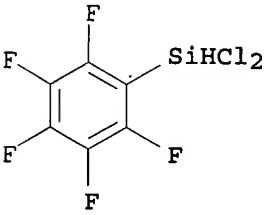
RN 561069-07-6 HCAPLUS
CN Silane, dichloro(pentafluorophenyl)(trifluoroethenyl)- (9CI) (CA INDEX NAME)



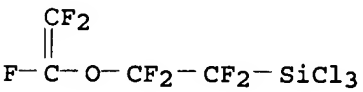
RN 561069-10-1 HCAPLUS
CN Silane, trichloro(1,3,4,5,6,7,8-heptafluoro-2-naphthalenyl)- (9CI) (CA INDEX NAME)



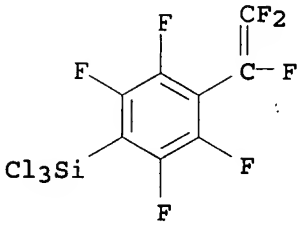
RN 561069-12-3 HCAPLUS
CN Silane, dichloro(pentafluorophenyl)- (9CI) (CA INDEX NAME)



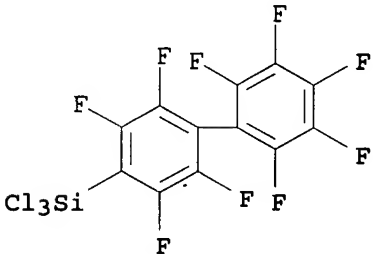
RN 561069-15-6 HCAPLUS
CN Silane, trichloro[1,1,2,2-tetrafluoro-2-[(trifluoroethenyl)oxy]ethyl]- (9CI) (CA INDEX NAME)



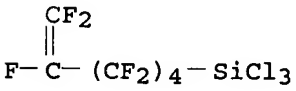
RN 561069-17-8 HCAPLUS
CN Silane, trichloro[2,3,5,6-tetrafluoro-4-(trifluoroethenyl)phenyl]- (9CI) (CA INDEX NAME)



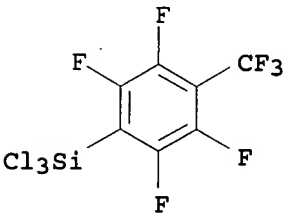
RN 561069-19-0 HCAPLUS
CN Silane, trichloro(2,2',3,3',4',5,5',6,6'-nonafluoro[1,1'-biphenyl]-4-yl)-(9CI) (CA INDEX NAME)



RN 561069-20-3 HCAPLUS
CN Silane, trichloro(1,1,2,2,3,3,4,4,5,6,6-undecafluoro-5-hexenyl)- (9CI) (CA INDEX NAME)



RN 635676-93-6 HCAPLUS
CN Silane, trichloro[2,3,5,6-tetrafluoro-4-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



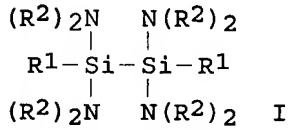
RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 8 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:779400 HCAPLUS
DN 141:305417
TI Formation of Si-containing thin films from Si-Si bonded organic silicon compounds

IN Itsuki, Atsushi
PA Mitsubishi Materials Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004266262	A	20040924	JP 2004-5285	20040113 <--
	US 2004203255	A1	20041014	US 2004-777469	20040211 <--
	CN 1645569	A	20050727	CN 2004-10007828	20040213 <--
PRAI	JP 2003-34560	A	20030213 <--		
	JP 2004-5285	A	20040113		

OS MARPAT 141:305417
GI



I

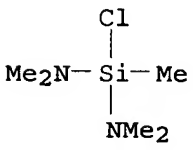
AB The title MOCVD or liquid-growth deposition of Si-containing thin films employs Si-Si bonded organic Si compds. (I; R1 = H, Me; R2 = Me, Et, Pr, tert-Bu). The I gives formation of Si-containing thin films such as Si3N4 and SiOHf at easy evaporation, high film formation rate, low film **vapor** or liquid **deposition** temperature, and high film tensile strength.
IC ICM H01L021-318
ICS C23C016-42; H01L021-316
CC 76-2 (Electric Phenomena)
IT Coating process
(**film**, rate for; formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)
IT Tensile strength
(formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)
IT **Vapor deposition** process
(**metalorg.**; formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)
IT Evaporation
(reactant; formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)
IT Bond
(silicon-silicon; formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)
IT 7439-93-2, Lithium, uses
RL: CAT (Catalyst use); USES (Uses)
(formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)
IT 151625-24-0P 206552-33-2P 763140-88-1P 763140-89-2P 763140-90-5P
RL: PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)
IT **10339-02-3 17891-70-2 18291-25-3 20213-75-6 206552-32-1 763140-83-6**

763140-84-7 763140-85-8 763140-86-9
763140-87-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)

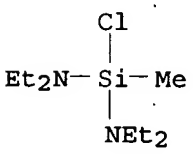
IT 12033-89-5P, Silicon nitride, properties
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)
(thin **film** deposition of; formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)

IT **10339-02-3 17891-70-2 18291-25-3**
20213-75-6 206552-32-1 763140-83-6
763140-84-7 763140-85-8 763140-86-9
763140-87-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(formation of Si-containing thin **films** from Si-Si bonded organic silicon compds.)

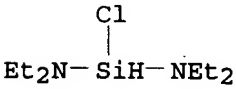
RN 10339-02-3 HCAPLUS
CN Silanediamine, 1-chloro-N,N,N',N',1-pentamethyl- (CA INDEX NAME)



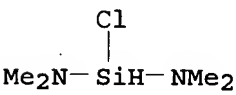
RN 17891-70-2 HCAPLUS
CN Silanediamine, 1-chloro-N,N,N',N'-tetraethyl-1-methyl- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 18291-25-3 HCAPLUS
CN Silanediamine, 1-chloro-N,N,N',N'-tetraethyl- (6CI, 8CI, 9CI) (CA INDEX NAME)

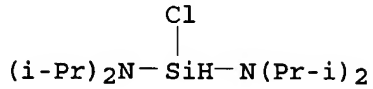


RN 20213-75-6 HCAPLUS
CN Silanediamine, 1-chloro-N,N,N',N'-tetramethyl- (8CI, 9CI) (CA INDEX NAME)

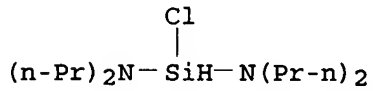


RN 206552-32-1 HCAPLUS
CN Silanediamine, 1-chloro-N,N,N',N'-tetrakis(1-methylethyl)- (9CI) (CA

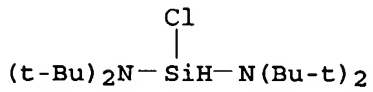
INDEX NAME)



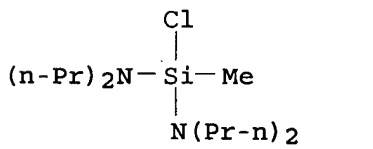
RN 763140-83-6 HCAPLUS
CN Silanediamine, 1-chloro-N,N,N',N'-tetrapropyl- (9CI) (CA INDEX NAME)



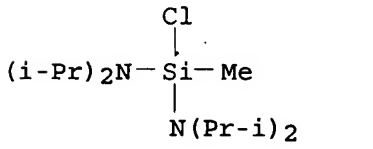
RN 763140-84-7 HCAPLUS
CN Silanediamine, 1-chloro-N,N,N',N'-tetrakis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



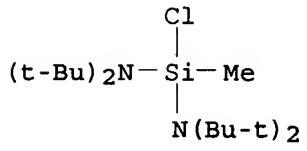
RN 763140-85-8 HCAPLUS
CN Silanediamine, 1-chloro-1-methyl-N,N,N',N'-tetrapropyl- (9CI) (CA INDEX NAME)



RN 763140-86-9 HCAPLUS
CN Silanediamine, 1-chloro-1-methyl-N,N,N',N'-tetrakis(1-methylethyl)- (9CI) (CA INDEX NAME)



RN 763140-87-0 HCAPLUS
CN Silanediamine, 1-chloro-N,N,N',N'-tetrakis(1,1-dimethylethyl)-1-methyl- (9CI) (CA INDEX NAME)



L24 ANSWER 9 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:738894 HCAPLUS
DN 141:268940
TI Organometallic compound, its synthesis, solution source material containing the organometallic compound, and thin film containing metal
IN Itsuki, Atsushi
PA Mitsubishi Materials Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004250431	A	20040909	JP 2003-327402	20030919 <--
	JP 3909320	B2	20070425		
	CN 1521172	A	20040818	CN 2004-10007411	20040121 <--
	US 2004210071	A1	20041021	US 2004-764273	20040123 <--
	US 7148367	B2	20061212		
	JP 2006188750	A	20060720	JP 2005-311072	20051026 <--
PRAI	JP 2003-17046	A	20030127 <--		
	JP 2003-327402	A	20030919 <--		

OS MARPAT 141:268940
AB An organometallic compound having a bond between nitrogen and a (semi-)metal has a Cl content ≤ 200 ppm and water content ≤ 30 ppm. Specifically, the organometallic compound may comprise M[(R1)2N](n-s)(R2)s, where M = Hf, Zr, Ta, Ti, Ce, Al, V, La, Nb, Ni, or Si, R1 = Me or Et, R2 = Et, n = valence of M, and s = 0 - n-1. A method for synthesis of the above compound involves purifying an organometallic compound prepared from a metal-containing compound and amino lithium by flash chromatog. A method for depositing a metal-containing film using a solution source material containing the above organometallic compound is also described.
IC ICM C07F007-00
ICS C07F007-10; C23C016-34; C23C016-40; H01L021-316
CC 75-1 (Crystallography and Liquid Crystals)
IT Chromatography
(flash; organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)
IT **Vapor deposition** process
(**metalorg.**; organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)
IT Purification
Synthesis
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)

IT Metals, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)

IT Organometallic compounds
RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); PUR (Purification or recovery); PREP (Preparation); USES (Uses)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)

IT Alkanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)

IT 1314-23-4, Zirconia, processes 7631-86-9, Silica, processes 12055-23-1, Hafnium dioxide
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)

IT 1344-28-1, Alumina, uses 13463-67-7, Titania, uses
RL: DEV (Device component use); USES (Uses)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)

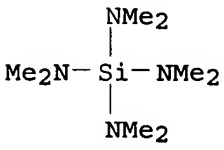
IT 109-99-9, Tetrahydrofuran, uses 110-82-7, Cyclohexane, uses 111-65-9, Octane, uses 7440-37-1, Argon, uses
RL: NUU (Other use, unclassified); USES (Uses)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)

IT **1624-01-7P**, Tetrakis(dimethylamino)silane 13801-49-5P, Tetrakis(diethylamino)zirconium **17048-10-1P**, Tetrakis(diethylamino)silane 19756-04-8P, Tetrakis(dimethylamino)zirconium 19782-68-4P, Tetrakis(dimethylamino)hafnium 19824-55-6P, Tetrakis(diethylamino)hafnium
RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); PUR (Purification or recovery); **PREP (Preparation)**; USES (Uses)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)

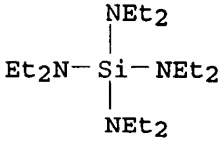
IT 3585-33-9P, Dimethylamino lithium
RL: PNU (Preparation, unclassified); PREP (Preparation)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)

IT 109-72-8, Butyl lithium, reactions 109-89-7, Diethylamine, reactions 124-40-3, Dimethylamine, reactions 7718-54-9, Nickel chloride, reactions 7721-01-9, Tantalum chloride 7790-86-5, Cerium chloride **10026-04-7**, Tetrachlorosilane 10026-11-6, Zirconium chloride 10026-12-7, Niobium chloride 10099-58-8, Lanthanum chloride 11105-12-7, Vanadium chloride 11130-18-0, Titanium chloride 13499-05-3, Hafnium chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin

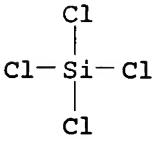
film containing metal)
IT 60-29-7, Diethyl ether, uses 75-09-2, Dichloromethane, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)
IT **1624-01-7P**, Tetrakis(dimethylamino)silane **17048-10-1P**, Tetrakis(diethylamino)silane
RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); PUR (Purification or recovery); **PREP (Preparation)**; USES (Uses)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)
RN 1624-01-7 HCAPLUS
CN Silanetetramine, N,N,N',N',N'',N'',N''',N'''-octamethyl- (CA INDEX NAME)



RN 17048-10-1 HCAPLUS
CN Silanetetramine, N,N,N',N',N'',N'',N''',N'''-octaethyl- (CA INDEX NAME)



IT **10026-04-7**, Tetrachlorosilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(organometallic compound, its synthesis by flash chromatog. purification, solution source material containing the organometallic compound, and thin **film** containing metal)
RN 10026-04-7 HCAPLUS
CN Silane, tetrachloro- (CA INDEX NAME)



L24 ANSWER 10 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:716399 HCAPLUS
DN 141:234273
TI Semiconductor device, semiconductor device fabrication, and film deposition
IN Minamikata, Hiroshi; Yamaguchi, Masaomi; Sugiyama, Yoshihiro
PA Fujitsu Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 19 pp.

CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004247474	A	20040902	JP 2003-35152	20030213 <--
PRAI JP 2003-35152		20030213 <--		

AB A semiconductor device comprises a a gate electrode formed on a semiconductor substrate via a gate insulator film of a N-containing high-k dielec. film and a high-k dielec. film free of N. Addnl., the gate insulator film may have a silica-based film at its interface with the substrate. A MOCVD method is also described.
IC ICM H01L029-78
ICS C23C016-40; H01L021-283; H01L021-316; H01L029-423; H01L029-49
CC 76-3 (Electric Phenomena)
IT Dielectric **films**
Semiconductor device fabrication
Semiconductor devices
(gate insulator **film** of semiconductor device, semiconductor device fabrication, and MOCVD **film** deposition)
IT **Vapor deposition** process
(**metalorg.**; gate insulator **film** of semiconductor device, semiconductor device fabrication, and MOCVD **film deposition**)
IT 1314-61-0, Tantalum oxide 1344-28-1, Alumina, processes 7631-86-9, Silica, processes 12055-23-1, Hafnium oxide 61027-35-8, Aluminum hafnium oxide
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(gate insulator **film** of semiconductor device, semiconductor device fabrication, and MOCVD **film** deposition)
IT 7440-42-8, Boron, uses
RL: MOA (Modifier or additive use); USES (Uses)
(gate insulator **film** of semiconductor device, semiconductor device fabrication, and MOCVD **film** deposition)
IT **186598-40-3**, Bis(tert-butylamino)silane
RL: NUU (Other use, unclassified); USES (Uses)
(gate insulator **film** of semiconductor device, semiconductor device fabrication, and MOCVD **film** deposition)
IT **186598-40-3**, Bis(tert-butylamino)silane
RL: NUU (Other use, unclassified); USES (Uses)
(gate insulator **film** of semiconductor device, semiconductor device fabrication, and MOCVD **film** deposition)
RN 186598-40-3 HCAPLUS
CN Silanediamine, N,N'-bis(1,1-dimethylethyl)- (CA INDEX NAME)

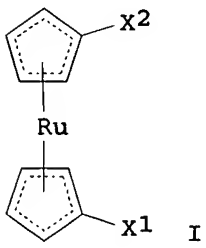
t-BuNH—SiH_2—NHBu-t

L24 ANSWER 11 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:493925 HCAPLUS
DN 141:62428
TI Ruthenium compound and process for producing metallic ruthenium film
IN Sakai, Tatsuya; Okada, Sachiko; Matsuki, Yasuo
PA JSR Corporation, Japan
SO PCT Int. Appl., 38 pp.
CODEN: PIXXD2

DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004050947	A1	20040617	WO 2003-JP11848	20030917 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	JP 2005060814	A	20050310	JP 2003-318133	20030910 <--
	AU 2003272881	A1	20040623	AU 2003-272881	20030917 <--
	US 2006240190	A1	20061026	US 2005-537484	20050603 <--
	US 7238822	B2	20070703		
PRAI	JP 2002-350951	A	20021203 <--		
	JP 2003-282385	A	20030730 <--		
	WO 2003-JP11848	W	20030917 <--		

OS MARPAT 141:62428
GI



I

AB A Ru compound capable of forming filmy metallic Ru of good quality; and a process for producing a metallic Ru film which comprises using the Ru compound to produce the film by CVD are described. The Ru compound as a material for CVD is represented by (I), where X1,2 = H, F, trifluoromethyl, pentafluoroethyl, or SiR1-3, and R1-3 = C1-10 hydrocarbon group, Ru(OCOR4)3, where R4 = trifluoromethyl and C1-10 hydrocarbon group, or YRuHnLm, where Y = cyclopentadienyl, cyclohexadienyl, cycloheptadienyl, cyclooctadienyl, butadienyl, or 2,3-dimethyl-1,3-butadienyl, L = carbonyl, Me, or ethenyl, n = 1-4, m = 0-2, n + m = 3 or 4.

IC ICM C23C016-18
ICS C07C011-12; C07C013-263; C07C053-124; C07C053-18
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 29, 76
IT **Vapor deposition** process
(**metalorg.**; ruthenium compound and CVD for producing metallic ruthenium **film**)
IT 7440-18-8, Ruthenium, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(ruthenium compound and CVD for producing metallic ruthenium **film**)

IT 7440-18-8DP, Ruthenium, Cyclopentadienyltetrahydride and dimethylbutadienyltricarbonyl complexes 12319-00-5P 32874-17-2P 62883-45-8P 144810-60-6P 705293-66-9P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process)
(ruthenium compound and CVD for producing metallic ruthenium **film**
)

IT 52649-53-3P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(ruthenium compound and CVD for producing metallic ruthenium **film**
)

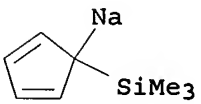
IT 25134-15-0P, Trimethylsilylcyclopentadiene
RL: PNU (Preparation, unclassified); PREP (Preparation)
(ruthenium compound and CVD for producing metallic ruthenium **film**
)

IT 50982-12-2P, Dichloro(1,5-cyclooctadiene) ruthenium **55562-85-1P** 72034-76-5P 79915-15-4P, Ruthenium trifluoroacetate 130570-72-8P, Ruthenium 2-ethylhexanoate 695196-89-5P
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(ruthenium compound and CVD for producing metallic ruthenium **film**
)

IT **75-77-4**, Trimethylsilylchloride, reactions 76-05-1, Trifluoroacetic acid, reactions 106-99-0, Butadiene, reactions 111-78-4, 1,5-Cyclooctadiene 149-57-5, 2-Ethylhexanoic acid 513-81-5, 2,3-Dimethyl-1,3-butadiene 542-92-7, Cyclopentadiene, reactions 930-30-3, 2-Cyclopenten-1-one 4984-82-1, Cyclopentadienyl sodium 7440-23-5, Sodium, reactions 10049-08-8, Ruthenium chloride 15243-33-1, Ruthenium carbonyl (RU3(CO)12) 80904-23-0 **81290-20-2**, Trifluoromethyltrimethylsilane 103905-53-9, 1,3-Cyclopentadien-1-ol 220405-40-3 705293-65-8 705293-67-0 705293-68-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(ruthenium compound and CVD for producing metallic ruthenium **film**
)

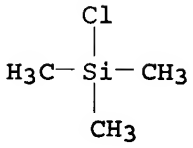
IT **55562-85-1P**
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(ruthenium compound and CVD for producing metallic ruthenium **film**
)

RN 55562-85-1 HCAPLUS
CN Sodium, [1-(trimethylsilyl)-2,4-cyclopentadien-1-yl]- (9CI) (CA INDEX NAME)

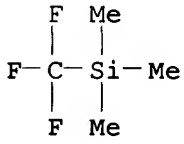


IT **75-77-4**, Trimethylsilylchloride, reactions **81290-20-2**, Trifluoromethyltrimethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(ruthenium compound and CVD for producing metallic ruthenium **film**
)

RN 75-77-4 HCAPLUS
CN Silane, chlorotrimethyl- (CA INDEX NAME)



RN 81290-20-2 HCAPLUS
CN Silane, trimethyl(trifluoromethyl)- (CA INDEX NAME)

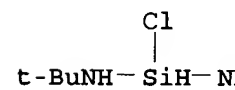


RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 12 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:433929 HCAPLUS
DN 141:15676
TI Composition and method for low temperature deposition of silicon-containing films such as films including silicon, silicon nitride, silicon dioxide and/or silicon oxynitride
IN Wang, Ziyun; Xu, Chongying; Laxman, Ravi K.; Baum, Thomas H.; Hendrix, Bryan; Roeder, Jeffrey
PA Advanced Technology Materials, Inc., USA
SO PCT Int. Appl., 69 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004044958	A2	20040527	WO 2003-US36097	20031112 <--
	WO 2004044958	A3	20040826		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2004096582	A1	20040520	US 2002-294431	20021114 <--
	US 2004138489	A1	20040715	US 2003-699079	20031031 <--
	AU 2003287710	A1	20040603	AU 2003-287710	20031112 <--
	EP 1567531	A2	20050831	EP 2003-781915	20031112 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2006517517	T	20060727	JP 2004-552143	20031112 <--
PRAI	US 2002-294431	A	20021114 <--		
	US 2003-699079	A	20031031 <--		

WO 2003-US36097 W 20031112 <--
OS MARPAT 141:15676
AB Si precursors for forming Si-containing films in the manufacture of semiconductor devices, such as low dielec. constant (k) thin films, high k gate silicates, low temperature Si epitaxial films, and films containing Si nitride (Si3N4), silicon oxynitride (SiOxNy) and/or SiO2. The precursors of the invention are amenable to use in low temperature (e.g., < 500° or <300°) CVD processes, for fabrication of ULSI devices and device structures.
IC ICM H01L
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 75
IT **18291-26-4P**, Silanediamine, 1-chloro-N,N'-bis(1,1-dimethylethyl)-
151625-20-6P, 1,1,2,2-Disilanetetramine, 1,2-dichloro-N,N,N',N',N'',N'',N''',N'''-octaethyl- 532980-53-3P, Disilanehexamine, N,N',N'',N''',N'''',N'''''-hexaethyl- 690973-76-3P, 1,1,2,2-Disilanetetramine, 1,2-dichloro-N,N',N'',N'''-tetrakis(1,1-dimethylethyl)-
690973-82-1P 693827-57-5P 693827-58-6P 693827-59-7P
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(**vapor deposition** precursor; composition and method for low temperature **deposition** of silicon-containing films such as films including silicon, silicon nitride, silicon dioxide and/or silicon oxynitride)
IT **18291-26-4P**, Silanediamine, 1-chloro-N,N'-bis(1,1-dimethylethyl)-
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(**vapor deposition** precursor; composition and method for low temperature **deposition** of silicon-containing films such as films including silicon, silicon nitride, silicon dioxide and/or silicon oxynitride)
RN 18291-26-4 HCAPLUS
CN Silanediamine, 1-chloro-N,N'-bis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



L24 ANSWER 13 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:290989 HCAPLUS
DN 140:313536
TI Process and apparatus for coating the interior surface of hollow objects
IN Hiss, Ludwig
PA Germany
SO Ger. Offen., 7 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10245459	A1	20040408	DE 2002-10245459	20020928 <--
	WO 2004031438	A1	20040415	WO 2003-EP10360	20030918 <--

W: AE, AG, AL, AU, BA, BB, BR, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EC, EE, EG, GD, GE, HR, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR,

LT, LV, MA, MG, MK, MN, MX, NI, NO, NZ, OM, PG, PH, PL, SC, SG, SY, TN, TT, UA, US, UZ, VC, VN, YU, ZA
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU	2003267378	A1	20040423	AU 2003-267378	20030918 <--
EP	1546433	A1	20050629	EP 2003-748049	20030918 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US	2006099359	A1	20060511	US 2005-528637	20050916 <--
PRAI DE	2002-10245459	A	20020928 <--		
DE	2003-10305546	A	20030210 <--		
WO	2003-EP10360	W	20030918 <--		

AB The invention concerns a process and an apparatus for coating the interior surface of hollow objects. The method allows for targeted adaptation of phys. characteristics such as elec. conductivity, diffusion behavior, or chemical stability of the hollow objects. Examples of objects to be coated include plastic pipes or flexible hoses, over the internal surfaces of which a plasma coating of .apprx.5-1000 nm thickness is formed. The coatings are applied individually or as a multilayer structure in a bidirectional manner. Such coatings can protect a medium the inside the hollow object from environmental pollutants. Conversely, the environment or material of the hollow object itself can be protected from a medium inside the hollow object as the coating prevents the escape of the medium.

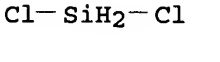
IC ICM C23C016-505
ICS C23C016-30

CC 76-11 (Electric Phenomena)
Section cross-reference(s): 42

IT 74-82-8P, Methane, uses **4109-96-0P**, Dichlorosilane 7664-41-7P, Ammonia, uses 7783-82-6P, Tungsten hexafluoride 7803-51-2P, Phosphine (PH3) 7803-62-5P, Silane, uses 19287-45-7P, Diborane
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(**vapor deposition** precursor; process and apparatus for coating the interior surface of hollow objects)

IT **4109-96-0P**, Dichlorosilane
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(**vapor deposition** precursor; process and apparatus for coating the interior surface of hollow objects)

RN 4109-96-0 HCAPLUS
CN Silane, dichloro- (CA INDEX NAME)



L24 ANSWER 14 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:269920 HCAPLUS
DN 140:291057
TI Silicon carbide precursor
IN Shen, Qionghua; MacDonald, Leo Spitz
PA Starfire Systems, Inc., USA
SO U.S. Pat. Appl. Publ., 6 pp.
CODEN: USXXCO
DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004063984	A1	20040401	US 2002-191912	20020709 <--
	US 6730802	B2	20040504		
PRAI	US 2002-191912		20020709 <--		

AB The compound 2,4,6-trimethyl-2,4,6-trisilaheptane, the preparation, and the use as a silicon carbide precursor in chemical vapor deposition and infiltration procedures are disclosed.

IC ICM C07F007-02

INCL 556465000

CC 57-2 (Ceramics)
Section cross-reference(s): 35, 56

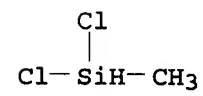
IT **75-54-7**, Methyldichlorosilane 109-99-9, Tetrahydrofuran, processes **1719-57-9**, Chloromethyldimethylchlorosilane 7439-95-4, Magnesium, processes 7647-01-0, Hydrochloric acid, processes 7757-82-6, Sodium sulfate, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(silicon carbide precursor for chemical **vapor deposition** and infiltration)

IT **3144-74-9P**, Chloromethyldimethylsilane
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; PROC (Process); USES (Uses)
(silicon carbide precursor for chemical **vapor deposition** and infiltration)

IT **75-54-7**, Methyldichlorosilane **1719-57-9**, Chloromethyldimethylchlorosilane
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(silicon carbide precursor for chemical **vapor deposition** and infiltration)

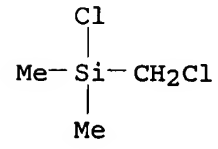
RN 75-54-7 HCAPLUS

CN Silane, dichloromethyl- (CA INDEX NAME)



RN 1719-57-9 HCAPLUS

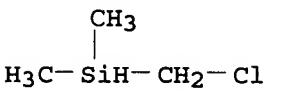
CN Silane, chloro(chloromethyl)dimethyl- (CA INDEX NAME)



IT **3144-74-9P**, Chloromethyldimethylsilane
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; PROC (Process); USES (Uses)
(silicon carbide precursor for chemical **vapor deposition** and infiltration)

RN 3144-74-9 HCAPLUS

CN Silane, (chloromethyl)dimethyl- (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

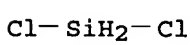
L24 ANSWER 15 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:81016 HCAPLUS
DN 140:155786
TI Method of forming a metal oxynitride and metal silicon oxynitride layer by a **vapor deposition** process
IN Senzaki, Yoshihide; Lee, Sang-in
PA ASML US, Inc., USA; Aviza Technology, Inc.
SO PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004010466	A2	20040129	WO 2003-US22060	20030716 <--
	WO 2004010466	A3	20040429		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2003249254	A1	20040209	AU 2003-249254	20030716 <--
	EP 1523765	A2	20050420	EP 2003-765584	20030716 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	CN 1643673	A	20050720	CN 2003-805831	20030716 <--
	JP 2005534173	T	20051110	JP 2004-523146	20030716 <--
	US 2005012089	A1	20050120	US 2004-504704	20040813 <--
PRAI	US 2002-396744P	P	20020719 <--		
	WO 2003-US22060	W	20030716 <--		

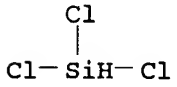
OS MARPAT 140:155786
AB The invention relates to a method of forming a metal oxynitride and metal silicon oxynitride layer by a **vapor deposition** process, where the materials are suitable for forming stack dielecs. The invention is directed to gate and capacitor dielecs. for use in making advanced high-k stack structures. A metal alkyamide is used in a MOCVD or ALD process to create metal oxynitride or metal silicon oxynitride dielec. film. The metal oxynitride or metal silicon oxynitride films can be positioned between a silicon substrate and a doped polycryst. silicone (Poly Si) or a metal electrode layer.
IC ICM H01L
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 75
ST **vapor deposition** process metal silicon oxynitride

dielec layer
IT Silanes
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkyl, **vapor deposition** precursor; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT Silanes
RL: RCT (Reactant); RACT (Reactant or reagent)
(amino, **vapor deposition** precursor; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT **Films**
(elec. conductive; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT Electric conductors
(**films**; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT Amides, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal alkylamides, **vapor deposition** precursor; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT Oxynitrides
RL: TEM (Technical or engineered material use); USES (Uses)
(metal, metal silicon, dielec. **films**; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT **Vapor deposition** process
(**metalorg.**; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT Atomic layer epitaxy
Dielectric **films**
(method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT Oxides (inorganic), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(silyl, **vapor deposition** precursor; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**vapor deposition** precursor; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT 7722-84-1, Hydrogen peroxide, processes 7732-18-5, Water, processes 7782-44-7, Oxygen, processes 10024-97-2, Nitrous oxide, processes 10028-15-6, Ozone, processes 10102-43-9, Nitric oxide, processes 17778-80-2, Atomic Oxygen, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(oxidant; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT 7440-21-3, Silicon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polycryst.; method of forming metal oxynitride and metal silicon

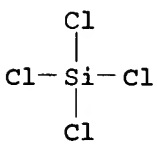
oxynitride layer by **vapor deposition** process)
IT 302-01-2, Hydrazine, reactions 302-01-2D, Hydrazine, alkyl derivs. 1590-87-0, DiSilane **4109-96-0**, Dichlorosilane 7664-41-7, Ammonia, reactions 7727-37-9, Nitrogen, reactions 7803-62-5, Silane, reactions **10025-78-2**, Trichlorosilane **10026-04-7**, Tetrachlorosilane 13436-03-8, Bis(trimethylsilyl)diazene 13465-77-5, Hexachlorodisilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(**vapor deposition** precursor; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
IT **4109-96-0**, Dichlorosilane **10025-78-2**, Trichlorosilane **10026-04-7**, Tetrachlorosilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(**vapor deposition** precursor; method of forming metal oxynitride and metal silicon oxynitride layer by **vapor deposition** process)
RN 4109-96-0 HCAPLUS
CN Silane, dichloro- (CA INDEX NAME)



RN 10025-78-2 HCAPLUS
CN Silane, trichloro- (CA INDEX NAME)



RN 10026-04-7 HCAPLUS
CN Silane, tetrachloro- (CA INDEX NAME)



L24 ANSWER 16 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:991121 HCAPLUS
DN 140:34661
TI System and method for forming a gate dielectric for a semiconductor device
IN Metzner, Craig R.; Kher, Shreyas S.; Han, Shixue
PA Applied Materials, Inc., USA
SO U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003232506	A1	20031218	US 2002-256563	20020927 <--
	US 6858547	B2	20050222		

	US 2003232501	A1	20031218	US 2002-302752	20021121 <--
	US 2005009371	A1	20050113	US 2004-913941	20040806 <--
	US 2006264067	A1	20061123	US 2006-456062	20060706 <--
PRAI	US 2002-388928P	P	20020614 <--		
	US 2002-256563	A1	20020927 <--		
	US 2002-302752	A1	20021121 <--		

AB A method of forming a dielec. stack on a pre-treated surface for improved mobility in devices such as transistors. The method comprises pre-cleaning a semiconductor wafer to remove native oxide, such as by applying hydrofluoric acid to form an HF-last surface, pre-treating the HF-last surface with ozonized deionized H2O, forming a dielec. stack on the pre-treated surface and providing a flow of NH3 in a process zone surrounding the wafer. Alternately, the method includes pre-treating the HF-last surface with NH3 , forming the stack after the pre-treating, and providing a flow of N2 in a process zone surrounding the wafer after the forming. The method also includes pre-treating the HF-last surface using an in-situ steam generation process, forming the stack on the pre-treated surface, and annealing the wafer after the forming. The pre-treating includes providing an inert gas flow in a process zone surrounding the HF-last surface, reacting H2 with an oxidizer in the process zone for a very short duration, and providing an inert gas flew in the process zone after the reacting.

IC ICM H01L021-336
ICS H01L021-3205; H01L021-4763; H01L021-469; H01L021-31

INCL 438761000; 438763000; 438785000; 438287000

CC 76-3 (Electric Phenomena)

IT **Vapor deposition** process
(chemical; forming gate dielec. for semiconductor device from hafnium oxide and silicate)

IT Annealing
Cleaning
Dielectric **films**
Nitriding
Oxidizing agents
Steam
Vapor phase epitaxy
(forming gate dielec. for semiconductor device from hafnium oxide and silicate)

IT **Vapor deposition** process
(**metalorg.**; forming gate dielec. for semiconductor device from hafnium oxide and silicate)

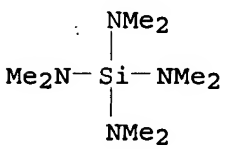
IT **Vapor deposition** process
(phys.; forming gate dielec. for semiconductor device from hafnium oxide and silicate)

IT **Vapor deposition** process
(plasma; forming gate dielec. for semiconductor device from hafnium oxide and silicate)

IT 1333-74-0, Hydrogen, processes 1590-87-0, Disilane **1624-01-7**, TetrakisDimethylamidoSilicon 7664-41-7, Ammonia, processes 7782-44-7, Oxygen, processes 7803-62-5, Silane, processes 10024-97-2, Nitrogen oxide (N2O), processes 19824-55-6, TetrakisDiethylamidoHafnium
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(forming gate dielec. for semiconductor device from hafnium oxide and silicate)

IT **1624-01-7**, TetrakisDimethylamidoSilicon
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(forming gate dielec. for semiconductor device from hafnium oxide and silicate)

RN 1624-01-7 HCAPLUS
CN Silanetetramine, N,N,N',N',N'',N'',N''',N'''-octamethyl- (CA INDEX NAME)



RE.CNT 163 THERE ARE 163 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 17 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:972280 HCAPLUS
DN 140:34603
TI Deposition of copper films on integrated circuits by gas reduction of metal-organic compounds
IN Chen, Ling; Norman, John A.; Chang, Mei
PA Applied Materials, Inc., USA
SO PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003102266	A1	20031211	WO 2003-US17367	20030602 <--
	W: CN, JP, KR				
	US 2004009665	A1	20040115	US 2003-441242	20030519 <--
	CN 1671883	A	20050921	CN 2003-817559	20030602 <--
	JP 2005528808	T	20050922	JP 2004-510498	20030602 <--
PRAI	US 2002-385715P	P	20020604 <--		
	US 2003-441242	A	20030519 <--		
	WO 2003-US17367	W	20030602 <--		

AB A method of forming a copper film on a substrate is described. The copper film is formed using a cyclical deposition technique by alternately adsorbing a copper-containing precursor and a reducing gas on a substrate. One or more of the time intervals for the copper-containing precursor, the time intervals for the reducing gas and the time intervals of non-pulsing may have different values for one or more deposition cycles of the cyclical deposition process. The copper film formation is compatible with integrated circuit fabrication processes. In one integrated circuit fabrication process, the copper film may be used as interconnect metalization. The Cu-containing precursor comprises a material selected from copper +'(3-diketonate)silylolefin complexes including copper+1 hexafluoroacetyl acetonate trimethylvinylsilane [Cu+1(hfac)(TMVS)], copper+2 hexafluoroacetyl acetonate [Cu+2(hfac)2], copper+2 diacetyl acetonate [Cu+2(acac)2] and 2CuMe2NSiMe2CH2CH2SiNMe2. The reducing gas comprises gas selected from silane (SiH4), disilane (Si2H6), dimethylsilane (SiC2H8), methylsilane (SiCH6), ethylsilane (SiC2H8), borane (BH3), diborane (B2H6), triborane (B3H9), tetraborane (B4H12), pentaborane (B5H15), hexaborane (B6H18), heptaborane (B7H21), octaborane (B8H24), nanoborane (B9H27), and decaborane (B10H30). The substrate may comprise a semiconductor material such as silicon, germanium, or gallium arsenide (GaAs). The dielec. layer may comprise an insulating material such as silicon oxide or silicon nitride.

IC ICM C23C016-455
ICS C23C016-04; C23C016-18

CC 76-3 (Electric Phenomena)
Section cross-reference(s): 49, 57

IT **Vapor deposition** process
(chemical; **deposition** of copper **films** on integrated circuits by gas reduction of **metalorg.** compds.)

IT Integrated circuits
Reduction
(deposition of copper **films** on integrated circuits by gas reduction of metalorg. compds.)

IT Coating process
(metalization; deposition of copper **films** on integrated circuits by gas reduction of metalorg. compds.)

IT 13395-16-9 14781-45-4 139566-53-3, Copper+1 hexafluoroacetyl acetonate trimethylvinylsilane
RL: RGT (Reagent); RACT (Reactant or reagent)
(CVD reagent; deposition of copper **films** on integrated circuits by gas reduction of metalorg. compds.)

IT 7440-50-8, Copper, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(coating **film**; deposition of copper **films** on integrated circuits by gas reduction of metalorg. compds.)

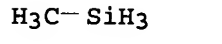
IT 7631-86-9, Silicon oxide, uses 12033-89-5, Silicon nitride, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(dielec. layer; deposition of copper **films** on integrated circuits by gas reduction of metalorg. compds.)

IT **992-94-9**, Methylsilane **1111-74-6**, Dimethylsilane 1590-87-0, Disilane **2814-79-1**, Ethylsilane 7803-62-5, Silane, reactions 13283-31-3, Borane, reactions 17702-41-9, Decaborane 19287-45-7, Diborane 36350-66-0, Triborane(9) 60349-62-4, Tetraborane(12) 632332-92-4 632332-93-5 632332-94-6 632332-95-7 632332-97-9
RL: RGT (Reagent); RACT (Reactant or reagent)
(reducing gas; deposition of copper **films** on integrated circuits by gas reduction of metalorg. compds.)

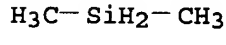
IT 1303-00-0, Gallium arsenide, uses 7440-21-3, Silicon, uses 7440-56-4, Germanium, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate; deposition of copper **films** on integrated circuits by gas reduction of metalorg. compds.)

IT **992-94-9**, Methylsilane **1111-74-6**, Dimethylsilane **2814-79-1**, Ethylsilane
RL: RGT (Reagent); RACT (Reactant or reagent)
(reducing gas; deposition of copper **films** on integrated circuits by gas reduction of metalorg. compds.)

RN 992-94-9 HCAPLUS
CN Silane, methyl- (CA INDEX NAME)

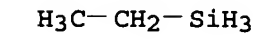


RN 1111-74-6 HCAPLUS
CN Silane, dimethyl- (CA INDEX NAME)



RN 2814-79-1 HCAPLUS

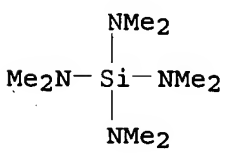
CN Silane, ethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 18 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:797793 HCAPLUS
DN 140:103038
TI Ultra-thin zirconium and hafnium silicate films deposited by MOCVD on Si(100)
AU Landheer, D.; Wu, X.; Chen, H.-W.; Lee, M.-S.; Moisa, S.; Huang, T.-Y.; Chao, T.-S.; Lu, Z.-H.; Lennard, W. N.
CS Institute for Microstructural Sciences, National Research Council of Canada, Ottawa, ON, K1A 0R6, Can.
SO Proceedings - Electrochemical Society (2003), Volume Date 2002, 2002-28(Physics and Technology of High-k Gate Dielectrics I), 125-134
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB HfO2 and Hf silicate films were deposited free of N and C using the low pressure pulse-mode deposition process with the precursors [Et2N]4Hf and [Me2N]4Si (TDMAS) using either O or NO as the oxidant during the oxidizing step. The highest [Si]/([Si]+[Hf]) concentration ratios achieved in this work was .apprx.45%. An interfacial layer .apprx. 2 nm thick was observed in the Hf silicate films, considerably thicker than the thinnest (.apprx. 1 nm) obtained for the HfO2 films or for Zr silicate films produced using Zr(O-iPr)2(thd)2 and Si(O-tBu)2(thd)2. Probably the interfacial layer is associated with an initial growth of SiO2 from the TDMAS. Oxidation of the Si substrate at 500-550° in NO to create an oxynitride buffer layer did not in substantially reduce this interfacial layer. TDMAS used with NO or O2 will not be suitable for low pressure, low temperature deposition of the silicates by MOCVD. The greater incorporation of Si observed at higher pressures may be due to gas-phase reactions.
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 57, 75
IT **Vapor deposition** process
(**metalorg.**; properties of ultrathin zirconium and hafnium silicate **films deposited** by MOCVD on silicon)
IT Diffusion barrier
Interfacial structure
Surface roughness
Thickness
(properties of ultrathin zirconium and hafnium silicate **films** deposited by MOCVD on silicon)
IT 116319-86-9P 596851-17-1P, Hafnium silicate (Hf0.6Si0.4O2)
643758-60-5P, Hafnium oxide silicate (Hf0.3O0.25(Si2O5)0.35)
RL: AMX (Analytical matrix); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); ANST (Analytical study); PREP (Preparation); PROC (Process); USES (Uses)
(properties of ultrathin zirconium and hafnium silicate **films** deposited by MOCVD on silicon)
IT 7631-86-9, Silica, processes
RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC

(Process)
(properties of ultrathin zirconium and hafnium silicate **films** deposited by MOCVD on silicon)
IT **1624-01-7**, Tetrakis(dimethylamino)silane 7782-44-7, Oxygen, processes 10102-43-9, Nitric oxide, processes 19824-55-6, Hafnium tetrakis(diethylamide) 204522-78-1 366803-70-5
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(properties of ultrathin zirconium and hafnium silicate **films** deposited by MOCVD on silicon)
IT 7440-21-3, Silicon, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(properties of ultrathin zirconium and hafnium silicate **films** deposited by MOCVD on silicon)
IT 7440-37-1, Argon, processes 7727-37-9, Nitrogen, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(properties of ultrathin zirconium and hafnium silicate **films** deposited by MOCVD on silicon)
IT 10101-52-7P 12055-23-1P, Hafnium oxide (HfO2)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(properties of ultrathin zirconium and hafnium silicate **films** deposited by MOCVD on silicon)
IT 11105-01-4P, Silicon nitride oxide
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(properties of ultrathin zirconium and hafnium silicate **films** deposited by MOCVD on silicon)
IT **1624-01-7**, Tetrakis(dimethylamino)silane
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(properties of ultrathin zirconium and hafnium silicate **films** deposited by MOCVD on silicon)
RN 1624-01-7 HCAPLUS
CN Silanetetramine, N,N,N',N',N'',N'',N''',N'''-octamethyl- (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 19 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:618019 HCAPLUS
DN 140:50908
TI Selective growth of TiO2 thin films on Si(100) surfaces by combination of metalorganic chemical **vapor deposition** and microcontact printing methods
AU Kang, B.-C.; Lee, J.-H.; Chae, H.-Y.; Jung, D.-Y.; Lee, S.-B.; Boo, J.-H.
CS Department of Chemistry and Institute of Basic Science, Sungkyunkwan University, Suwon, 440-746, S. Korea

SO Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures--Processing, Measurement, and Phenomena (**2003**), 21(4), 1773-1776
CODEN: JVSTBM; ISSN: 1071-1023
PB American Institute of Physics
DT Journal
LA English

AB We successfully patterned TiO2 thin films by metalorg. chemical **vapor deposition** (MOCVD) on Si(100) substrates where the surface was first modified by an organic thin film. The organic thin film [octadecyltrichlorosilane (OTS)] of self-assembled monolayers (SAMs) was deposited by microcontact printing. Selective deposition of a 130 nm thick TiO2 film was done on a 300-500 °C surface prepared by MOCVD without any carrier or bubbler gas. Auger electron spectroscopy and x-ray diffraction analyses showed that the deposited TiO2 material was stoichiometric, polycryst., and consisted of anatase phase. Alpha-step profile and optical-microscopic images also showed that the boundaries between the OTS SAMs and selectively deposited TiO2 thin film areas are definite and sharp. Capacitance-voltage measurement of a TiO2 thin film yielded a dielec. constant of 29, suggesting possible application to electronic materials.

CC 76-2 (Electric Phenomena)
Section cross-reference(s): 56, 73

IT **Vapor deposition** process
(**metalorg.**; selective growth of TiO2 thin **films** on Si(100) surfaces by combination of **metalorg.** chemical **vapor deposition** and microcontact printing methods)

IT Printing (nonimpact)
(micro contact-; selective growth of TiO2 thin **films** on Si(100) surfaces by combination of **metalorg.** chemical **vapor deposition** and microcontact printing methods)

IT Electric contacts
(micro-; selective growth of TiO2 thin **films** on Si(100) surfaces by combination of **metalorg.** chemical **vapor deposition** and microcontact printing methods)

IT Self-assembled monolayers
(octadecyltrichlorosilane thin **film**; selective growth of TiO2 thin **films** on Si(100) surfaces by combination of **metalorg.** chemical **vapor deposition** and microcontact printing methods)

IT Optical **films**
(titania **film** for; selective growth of TiO2 thin **films** on Si(100) surfaces by combination of **metalorg.** chemical **vapor deposition** and microcontact printing methods)

IT Dielectric constant
Electric capacitance-potential relationship
Electric insulators
Optical materials
(titania thin **film**; selective growth of TiO2 thin **films** on Si(100) surfaces by combination of **metalorg.** chemical **vapor deposition** and microcontact printing methods)

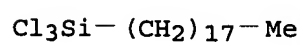
IT 13463-67-7P, Titanium oxide (TiO2), properties
RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(anatase polycryst.; selective growth of TiO2 thin **films** on Si(100) surfaces by combination of **metalorg.** chemical **vapor deposition** and microcontact printing methods)

IT **112-04-9P**, Octadecyltrichlorosilane

RL: PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(self-assembled monolayer **deposition**; selective growth of TiO2 thin **films** on Si(100) surfaces by combination of **metalorg.** chemical **vapor deposition** and microcontact printing methods)

IT **112-04-9P**, Octadecyltrichlorosilane
RL: PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(self-assembled monolayer **deposition**; selective growth of TiO2 thin **films** on Si(100) surfaces by combination of **metalorg.** chemical **vapor deposition** and microcontact printing methods)

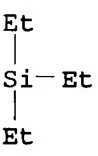
RN 112-04-9 HCAPLUS
CN Silane, trichlorooctadecyl- (CA INDEX NAME)



RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 20 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:555831 HCAPLUS
DN 139:252697
TI Crystalline structure of SiC thin films grown by MOCVD method with tetraethylsilane
AU Asahina, Shuichi; Kubo, Naoki; Tsuda, Hiroshi; Kanayama, Nobuyuki; Moritani, Akihiro; Kitahara, Kuninori
CS Shimane Institute for Industrial Technology, Shimane, 690-0816, Japan
SO Hyomen Gijutsu (**2003**), 54(5), 372-373
CODEN: HYGIEX; ISSN: 0915-1869
PB Hyomen Gijutsu Kyokai
DT Journal
LA English
AB The crystalline SiC thin films were grown on Si substrates by thermal CVD process using the liquid source, tetraethylsilane. The film was studied by XRD and TEM methods. The film consisted of polycryst. 3C-SiC and included stacking faults.
CC 75-1 (Crystallography and Liquid Crystals)
IT **Vapor deposition** process
(**metalorg.**; microstructure and crystalline structure of SiC thin **films** grown by MOCVD method with tetraethylsilane)
IT Crystallization
Microstructure
Stacking faults
(microstructure and crystalline structure of SiC thin **films** grown by MOCVD method with tetraethylsilane)
IT 409-21-2, Silicon carbide (SiC), properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(microstructure and crystalline structure of SiC thin **films** grown by MOCVD method with tetraethylsilane)
IT **631-36-7**, Tetraethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(microstructure and crystalline structure of SiC thin **films** grown by MOCVD method with tetraethylsilane)
IT **631-36-7**, Tetraethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)

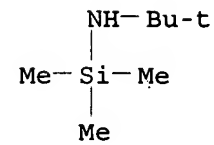
(microstructure and crystalline structure of SiC thin **films** grown by MOCVD method with tetraethylsilane)
RN 631-36-7 HCAPLUS
CN Silane, tetraethyl- (CA INDEX NAME)



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 21 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:473448 HCAPLUS
DN 139:189002
TI Highly Conformal Thin Films of Tungsten Nitride Prepared by Atomic Layer Deposition from a Novel Precursor
AU Becker, Jill S.; Suh, Seigi; Wang, Shenglong; Gordon, Roy G.
CS Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA, 02138, USA
SO Chemistry of Materials (**2003**), 15(15), 2969-2976
CODEN: CMATEX; ISSN: 0897-4756
PB American Chemical Society
DT Journal
LA English
AB Highly uniform, smooth, and conformal coatings of W nitride were synthesized by atomic layer **deposition** (ALD) from **vapors** of a novel precursor, bis(tert-butylimido)-bis(dimethylamido)tungsten, (tBuN)2(Me2N)2W, and NH3 at low substrate temps. (250-350°). This W precursor is a low-viscosity, noncorrosive liquid with sufficient volatility at room temperature to be a vapor source for ALD. These vapors were alternately pulsed into a heated reactor, yielding up to 0.1 nm of W nitride film for every cycle, with no initial delay or induction period. The films were uniform in thickness along the 20-cm length of the deposition zone, as determined by SEM. Successful depositions were carried out on all substrates tested, including Si, glass, quartz, glassy C, stainless steel, Al, Au, and Cu. The films are shiny, Ag-colored, and elec. conducting. All of the films showed good adhesion to the substrates, were acid-resistant, and did not oxidize over time. The stoichiometry of the WN films is 1:1 by Rutherford backscattering spectrometry. The films were amorphous as-deposited, as shown by x-ray diffraction and high-resolution TEM. 100% step coverage was obtained inside holes with aspect ratios >200:1. Annealing for 30 min at temps. >725° converted the WN to pure, polycryst. W metal. WN films as thin as 1.5 nm proved to be good barriers to diffusion of Cu for temps. up to 600°. ALD of Cu onto the surface of the WN produced strongly adherent Cu films that could be used as seed layers for CVD or electrodeposition of thicker Cu coatings.
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 66, 67
IT Electric resistance
Glass substrates
Surface roughness
Thickness
(ALD and properties of tungsten nitride **films** on substrates)
IT Annealing
(ALD and properties of tungsten nitride **films** on substrates

after)
IT Reaction mechanism
(in ALD of tungsten nitride **films** on substrates)
IT **Vapor deposition** process
(**metalorg.**, ALD; ALD and properties of tungsten nitride **films** on substrates)
IT 406462-42-8P
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(ALD and properties of tungsten nitride **films** on substrates)
IT 12058-38-7P, Tungsten nitride (WN)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(ALD and properties of tungsten nitride **films** on substrates)
IT 7440-44-0, Carbon, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(glassy, substrate; ALD and properties of tungsten nitride **films** on substrates)
IT 7664-41-7P, Ammonia, properties 406462-43-9P, Bis(tert-butylimido)-bis(dimethylamido)tungsten
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(precursor; ALD and properties of tungsten nitride **films** on substrates)
IT 3585-33-9, Lithium dimethylamide **5577-67-3** 13283-01-7, Tungsten hexachloride 57018-31-2
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(reactant for volatile compound preparation; ALD and properties of tungsten nitride **films** on substrates)
IT 134782-37-9P 577965-50-5P
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(reactant for volatile compound preparation; ALD and properties of tungsten nitride **films** on substrates)
IT 110-86-1P, Pyridine, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(reactant for volatile compound preparation; ALD and properties of tungsten nitride **films** on substrates)
IT 7429-90-5, Aluminum, processes 7440-21-3, Silicon, processes 7440-50-8, Copper, processes 7440-57-5, Gold, processes 7631-86-9, Silica, processes 12597-68-1, Stainless steel, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(substrate; ALD and properties of tungsten nitride **films** on substrates)
IT **5577-67-3**
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(reactant for volatile compound preparation; ALD and properties of tungsten nitride **films** on substrates)
RN 5577-67-3 HCAPLUS
CN Silanamine, N-(1,1-dimethylethyl)-1,1,1-trimethyl- (CA INDEX NAME)



RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 22 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:391696 HCAPLUS
DN 139:189232
TI Hydrogenated amorphous and crystalline SiC thin films grown by RF-PECVD and thermal MOCVD; comparative study of structural and optical properties
AU Jung, C.-K.; Lim, D.-C.; Jee, H.-G.; Park, M.-G.; Ku, S.-J.; Yu, K.-S.; Hong, B.; Lee, S.-B.; Boo, J.-H.
CS Department of Chemistry, Sungkyunkwan University, Suwon, 440-746, S. Korea
SO Surface and Coatings Technology (2003), 171(1-3), 46-50
CODEN: SCTEEJ; ISSN: 0257-8972
PB Elsevier Science B.V.
DT Journal
LA English
AB Thin films of hydrogenated amorphous Si carbide (a-SiC:H) and crystalline Si carbide (c-SiC) with different compns. were deposited on Si (1 0 0) substrates by both RF plasma enhanced CVD and thermal metal organic CVD methods using a SiH4 + CH4 gas mixture and a single mol. precursor of diethylmethylsilane, resp. In this experiment, the authors mainly studied the dependence of structural and optical properties of a-SiC:H and c-SiC thin films on the deposition parameters such as deposition temperature, pressure, RF power and annealing temperature From this comparative study on structural and compositional differences of the a-SiC:H and c-SiC thin films, the authors realized that there are much different H contents and crystallinity in the films depending on the deposition temperature and annealing temperature With increases in these parameters, also, the H contents and crystallinity are drastically changed to be less H and better crystalline films starting from amorphous, polycryst. and single crystalline, sequentially. Their optical properties are also strongly changed, for example, the refractive index and optical band gap are increased with increasing deposition temperature, pressure, RF power and annealing temperature And the structural and optical properties of c-SiC thin film were analyzed with x-ray diffraction, scanning electron microscope, and IR absorption techniques.
CC 76-11 (Electric Phenomena)
Section cross-reference(s): 57, 73, 75
IT Temperature
(annealing; structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)
IT **Vapor deposition** process
(**metalorg.**; structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)
IT Band gap
(optical; structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)
IT **Vapor deposition** process
(plasma; structural and optical properties of hydrogenated amorphous

and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)

IT Annealing
Crystallinity
Glass substrates
Grain size
IR spectra
Pressure
Refractive index
Surface roughness
(structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)

IT Temperature
(substrate; structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)

IT 74-82-8, Methane, processes **760-32-7**, Diethylmethylsilane
7803-62-5, Silicon hydride (SiH4), processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(precursor; structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)

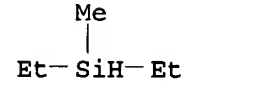
IT 1333-74-0P, Hydrogen, uses
RL: MOA (Modifier or additive use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(silicon carbide containing; structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)

IT 409-21-2P, Silicon carbide (SiC), properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)

IT 7440-21-3, Silicon, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(substrate; structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)

IT **760-32-7**, Diethylmethylsilane
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(precursor; structural and optical properties of hydrogenated amorphous and crystalline silicon carbide thin **films** grown by RF-PECVD and thermal MOCVD)

RN 760-32-7 HCAPLUS
CN Silane, diethylmethyl- (CA INDEX NAME)



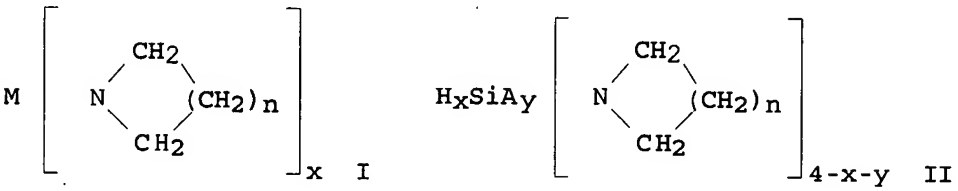
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

KATHLEEN FULLER EIC1700 571/272-2505

L24 ANSWER 23 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:946971 HCAPLUS
DN 138:31924
TI Source reagent compositions for OMCVD formation of gate dielectric thin films using amide precursors and method of using same
IN Baum, Thomas H.; Xu, Chongying; Hendrix, Bryan C.; Roeder, Jeffrey F.
PA Advanced Technology Materials, Inc., USA
SO U.S. Pat. Appl. Publ., 25 pp., Cont.-in-part of U.S. Pat. Appl. 2002 175,393.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002187644	A1	20021212	US 2001-954831	20010918 <--
	US 6869638	B2	20050322		
	US 2002175393	A1	20021128	US 2001-823196	20010330 <--
	US 7005392	B2	20060228		
	WO 2002079211	A1	20021010	WO 2002-US9390	20020327 <--
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2002258624	A1	20021015	AU 2002-258624	20020327 <--
	EP 1373278	A1	20040102	EP 2002-728580	20020327 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2004529495	T	20040924	JP 2002-577835	20020327 <--
	US 2002180028	A1	20021205	US 2002-112517	20020329 <--
	US 7084080	B2	20060801		
	US 2006099831	A1	20060511	US 2005-301043	20051212 <--
	US 2006148271	A1	20060706	US 2006-363904	20060228 <--
PRAI	US 2001-823196	A2	20010330	<--	
	US 2001-954831	A	20010918	<--	
	WO 2002-US9390	W	20020327	<--	
	US 2002-112517	A1	20020329	<--	

OS MARPAT 138:31924
GI



AB A CVD method of forming gate dielec. thin films with low concns. of C and halogen impurities on a substrate uses metalloamide compds. M(NR1R2)x or I, or wherein M is Zr, Hf, Y, La, Lanthanide series elements, Ta, Ti, or

Al; N is N; each of R1 and R2 is same or different and is independently selected from H, aryl, perfluoroaryl, C1-C8 alkyl, C1-C8 perfluoroalkyl, alkylsilyl; and x is the oxidation state on metal M; and an aminosilane compound of the formula HxSiAy(NR1R2)4-x-y or II, wherein H is H; x is 0-3; Si is Si; A is a halogen; Y is 0-3; N is N; each of R1 and R2° is same or different and is independently selected from the group consisting of H, aryl, perfluoroaryl, C1-C8 alkyl, and C1-C8 perfluoroalkyl; and n is from 1-6. By comparison with the standard SiO2 gate dielec. materials, these gate dielec. materials provide low levels of C and halide impurity.

IC ICM H01L021-311
INCL 438700000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 75
IT Transition metal complexes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(amides; source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)
IT Silanes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(amino; source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)
IT Ethers, uses
RL: NUU (Other use, unclassified); USES (Uses)
(cyclic; source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)
IT Amides, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(metal; source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)
IT **Vapor deposition** process
(**metalorg.**; source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)
IT Amines, uses
RL: NUU (Other use, unclassified); USES (Uses)
(polyamines, nonpolymeric; source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)
IT Amines, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(silyl; source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)
IT Dielectric **films**
Oxidizing agents
Solvents
(source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)
IT Alcohols, uses
Amines, uses
Aromatic hydrocarbons, uses
Ethers, uses
Glycols, uses
Hydrocarbons, uses
Noble gases, uses
RL: NUU (Other use, unclassified); USES (Uses)
(source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)
IT 7782-44-7, Oxygen, processes 10024-97-2, Dinitrogen oxide, processes

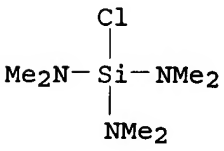
10028-15-6, Ozone, processes 10102-43-9, Nitric oxide, processes
13307-05-6, Tris(dimethylamino)chlorosilane **18881-64-6**,
Bis(diethylamino)dichlorosilane 19782-68-4,
Tetrakis(dimethylamino)hafnium 19824-55-6, Tetrakis(diethylamino)hafnium
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)

IT 110-71-4, Glyme 111-65-9, Octane, uses 143-24-8, Tetraglyme
1333-74-0, Hydrogen, uses 7440-37-1, Argon, uses 7440-59-7, Helium, uses 7727-37-9, Nitrogen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)

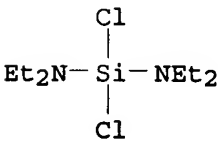
IT 7631-86-9P, Silica, processes 12055-23-1P, Hafnia
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)

IT **13307-05-6**, Tris(dimethylamino)chlorosilane **18881-64-6**,
Bis(diethylamino)dichlorosilane
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(source reagent compns. for OMCVD formation of gate dielec. thin **films** using amide precursors)

RN 13307-05-6 HCAPLUS
CN Silanetriamine, 1-chloro-N,N,N',N',N'',N''-hexamethyl- (CA INDEX NAME)



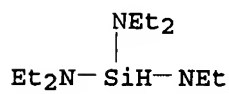
RN 18881-64-6 HCAPLUS
CN Silanediamine, 1,1-dichloro-N,N,N',N'-tetraethyl- (6CI, 8CI, 9CI) (CA INDEX NAME)



RE.CNT 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 24 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:823695 HCAPLUS
DN 138:115209
TI Hf1-xSixO2 deposition by metal organic chemical **vapor deposition** using the Hf(NEt2)4/SiH(NEt2)3/O2 gas system
AU Ohshita, Yoshio; Ogura, Atsushi; Ishikawa, Masato; Hoshino, Asako; Hiiro, Shigeki; Suzuki, Toshie; Machida, Hideaki
CS Toyota Technological Institute, Tempaku, Nagoya, 468-8511, Japan

SO Thin Solid Films (**2002**), 416(1-2), 208-211
CODEN: THSFAP; ISSN: 0040-6090
PB Elsevier Science B.V.
DT Journal
LA English
AB Hf1-xSixO2 thin film was deposited on a Si substrate by low pressure CVD using the tetrakis(diethylamido)hafnium {Hf[NEt2]4}/Tris(diethylamino)silane {SiH[NEt2]3}/O2 gas system. During the HfO2 **deposition**, SiH[NEt]3 **vapor** was injected and Hf1-xSixO2 film was deposited. By increasing the amount of the supplied SiH[NEt2]3, the ratio of Si to Hf in the film increased and the refractive index of the film decreased. While the deposited HfO2 film was polycryst., Hf1-xSixO2 was amorphous. The step-coverage quality was slightly degraded as a result of the SiH[NEt2]3 injection. No residual C was detected in the film by XPS measurement indicating that the residual C amount was <1%. However, the amount of residual N increased with an increase in the supply of SiH[NEt2]3.
CC 75-1 (Crystallography and Liquid Crystals)
IT **Vapor deposition** process
(**metalorg.**; surface structure and refractive index of Hf1-xSixO2 **films** on silicon substrate grown by **metalorg.** CVD using the Hf(NEt2)4/SiH(NEt2)3/O2 gas system)
IT Refractive index
Surface structure
(surface structure and refractive index of Hf1-xSixO2 **films** on silicon substrate grown by metalorg. CVD using the Hf(NEt2)4/SiH(NEt2)3/O2 gas system)
IT 12055-23-1, Hafnium oxide (HfO2) 153023-57-5, Hafnium silicon oxide ((Hf,Si)O2) 485846-16-0, Hafnium oxide silicate (Hf0.6500.6(SiO4)0.35)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(surface structure and refractive index of Hf1-xSixO2 **films** on silicon substrate grown by metalorg. CVD using the Hf(NEt2)4/SiH(NEt2)3/O2 gas system)
IT 7782-44-7, Oxygen, reactions **15730-66-2** 19824-55-6, Tetrakis(diethylamido)hafnium
RL: RCT (Reactant); RACT (Reactant or reagent)
(surface structure and refractive index of Hf1-xSixO2 **films** on silicon substrate grown by metalorg. CVD using the Hf(NEt2)4/SiH(NEt2)3/O2 gas system)
IT **15730-66-2**
RL: RCT (Reactant); RACT (Reactant or reagent)
(surface structure and refractive index of Hf1-xSixO2 **films** on silicon substrate grown by metalorg. CVD using the Hf(NEt2)4/SiH(NEt2)3/O2 gas system)
RN 15730-66-2 HCAPLUS
CN Silanetriamine, N,N,N',N',N'',N''-hexaethyl- (CA INDEX NAME)



RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

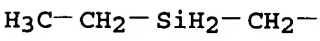
L24 ANSWER 25 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:450313 HCAPLUS
DN 137:26895
TI Method for improving barrier properties of refractory metals/metal

nitrides with a safer alternative to silane
IN Russell, Noel; Faust, Richard A.; Yui, Robert E.; Lu, Jiong-ping
PA USA
SO U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

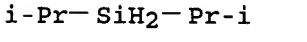
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002072227	A1	20020613	US 2001-938207	20010823 <--
PRAI US 2000-227544P	P	20000824 <--		
US 2000-250224P	P	20001130 <--		

AB A barrier/liner structure for metal interconnections in semiconductor device is described. First, a refractory metal/metal nitride layer is formed over a structure, for example, by metal-organic CVD (MOCVD). Then, the refractory metal/metal nitride layer is exposed to an organosilane, such as diethylsilane, to obtain a silicon-rich surface layer.

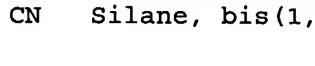
IC ICM H01L021-44
INCL 438653000
CC 76-3 (Electric Phenomena)
IT **Vapor deposition** process
(**metalorg.**; method for improving barrier properties of refractory metals/metal nitrides as alternative to silane for interconnections in semiconductor devices)
IT Dielectric **films**
Integrated circuits
Interconnections, electric
Semiconductor device fabrication
Semiconductor devices
(method for improving barrier properties of refractory metals/metal nitrides as alternative to silane for interconnections in semiconductor devices)
IT **542-91-6**, Diethylsilane 3275-24-9, Tetrakis(dimethylamido)titanium **18209-66-0**, Diisopropylsilane **30736-07-3**, Di-tert-butylsilane 175923-03-2, Tetrakis(ethylmethylamido)titanium
RL: RCT (Reactant); RACT (Reactant or reagent)
(method for improving barrier properties of refractory metals/metal nitrides as alternative to silane for interconnections in semiconductor devices)
IT **542-91-6**, Diethylsilane **18209-66-0**, Diisopropylsilane **30736-07-3**, Di-tert-butylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(method for improving barrier properties of refractory metals/metal nitrides as alternative to silane for interconnections in semiconductor devices)
RN 542-91-6 HCAPLUS
CN Silane, diethyl- (CA INDEX NAME)



RN 18209-66-0 HCAPLUS
CN Silane, bis(1-methylethyl)- (9CI) (CA INDEX NAME)



RN 30736-07-3 HCAPLUS
CN Silane, bis(1,1-dimethylethyl)- (CA INDEX NAME)



L24 ANSWER 26 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:439170 HCAPLUS
DN 137:26814
TI Film formation by metalorganic chemical **vapor deposition**
IN Ogura, Atsushi
PA Nec Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2002167672	A	20020611	JP 2000-364056	20001130 <--
PRAI JP 2000-364056		20001130 <--		

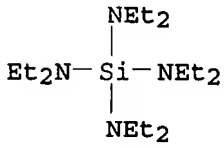
AB The method involves (1) introducing ≥1 kinds of M[NEt2]4 (M = metal involving Si) into a reactor, (2) chemical **vapor depositing** metal (involving alloys) or metal compound films, and (3) heating at a higher temperature than the deposition temperature Metal, metal oxide, or metal nitride films are obtained on uneven surfaces of electronic or semiconductor devices with good controllability and uniformity.
IC ICM C23C016-18
ICS C23C016-34; C23C016-40; H01L021-285; H01L021-316
CC 76-3 (Electric Phenomena)
IT Heat treatment
Semiconductor device fabrication
(MOCVD of metal, oxide, or nitride **films** using diethylamine compds. on uneven substrates)
IT **Vapor deposition** process
(**metalorg.**; MOCVD of metal, oxide, or nitride **films** using diethylamine compds. on uneven substrates)
IT 4419-47-0, Tetrakis(diethylamino)titanium 7664-41-7, Ammonia, processes 7727-37-9, Nitrogen, processes 7732-18-5, Water, processes 7782-44-7, Oxygen, processes 10024-97-2, Nitrogen oxide (N2O), processes 10102-43-9, Nitrogen oxide (NO), processes 13801-49-5, Tetrakis(diethylamino)zirconium **17048-10-1** 19824-55-6, Tetrakis(diethylamino)hafnium 67313-80-8 98145-63-2
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(MOCVD of metal, oxide, or nitride **films** using diethylamine compds. on uneven substrates)
IT 1314-61-0P, Tantalum oxide 7440-25-7P, Tantalum, processes 12033-62-4P, Tantalum nitride
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(MOCVD of metal, oxide, or nitride **films** using diethylamine compds. on uneven substrates)
IT 1333-74-0, Hydrogen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(carrier gases; MOCVD of metal, oxide, or nitride **films** using

diethylamine compds. on uneven substrates)

IT **17048-10-1**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(MOCVD of metal, oxide, or nitride **films** using diethylamine compds. on uneven substrates)

RN 17048-10-1 HCAPLUS

CN Silanetetramine, N,N,N',N',N'',N'',N''',N'''-octaethyl- (CA INDEX NAME)



L24 ANSWER 27 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:429246 HCAPLUS

DN 137:27053

TI Zirconium-doped BST materials and MOCVD deposition as dielectric films for microelectronic devices

IN Stauf, Gregory T.; Chen, Philip S.; Roeder, Jeffrey F.

PA Advanced Technology Materials, Inc., USA

SO PCT Int. Appl., 49 pp.
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002045128	A2	20020606	WO 2001-US43984	20011114 <--
	WO 2002045128	A3	20030103		
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2002103087	A1	20020801	US 2000-726183	20001129 <--
	US 6599447	B2	20030729		
	AU 2002025728	A5	20020611	AU 2002-25728	20011114 <--
PRAI	US 2000-726183	A	20001129 <--		
	WO 2001-US43984	W	20011114 <--		

AB A Zr-doped (Ba,Sr)TiO3 perovskite crystal material dielec. thin film is claimed with at least one of the characteristics including: (a) a breakdown strength of at least 1.3 MV/cm; (b) a leakage current of ≤1 + 10-3 A/cm2 under applied voltage of about ±3V or above and at temperature of .apprx.100° or above; and (c) an energy storage d. of at least 15 J/cc. The dielec. thin film comprises Zr dopant in the amount of 0.5% to 50% by total weight of the Zr-doped (Ba,Sr)TiO3 perovskite crystal material, preferably 2-15%, more preferably 4% to 14%, and most preferably 5% to 12%. Such dielec. thin film in a preferred aspect is deposited by a MOCVD process using metal precursors Ba(thd)2-polyamine, Sr(thd)2-polyamine, Zr(thd)4, and Ti(OiPr)2(thd)2 at a deposition temperature in the range from .apprx.560° to 700°.

IC ICM H01L
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 74
IT Memory devices
(DRAM (dynamic random access); zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)
IT Alcohols, uses
RL: NUU (Other use, unclassified); USES (Uses)
(aliphatic, solvent; zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)
IT Alkenes, processes
Alkynes
Cycloalkadienes
Cycloalkenes
Ethers, processes
Ketones, processes
Polyamines
Thioethers
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(barium strontium titanium zirconium complexes; zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)
IT Amines, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(barium strontium titanium zirconium tetraamine complexes; zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)
IT Amines, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(diamines, barium strontium titanium zirconium complexes; zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)
IT Imines
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(diimines, barium strontium titanium zirconium complexes; zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)
IT Optical imaging devices
(flat-panel; zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)
IT Imines
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(ketimines, barium strontium titanium zirconium complexes; zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)
IT **Vapor deposition** process
(**metalorg.**; zirconium-doped barium strontium titanate materials and MOCVD **deposition** as dielec. **films** for microelectronic devices)
IT Amines, uses
RL: NUU (Other use, unclassified); USES (Uses)
(polyamines, nonpolymeric, solvent; zirconium-doped barium strontium

titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)

IT Amines, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(triamines, barium strontium titanium zirconium complexes; zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)

IT Dielectric **films**
Electroluminescent devices
Ferroelectric capacitors
Ferroelectric **films**
Ferroelectric memory devices
Integrated circuits
Oxidizing agents
Perovskite-type crystals
Solar cells
Thickness
(zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)

IT 71-50-1, Acetate, uses 109-99-9, THF, uses 123-86-4, Butyl acetate 143-24-8, Tetraglyme
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)

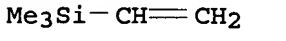
IT 107-15-3D, Ethylenediamine, barium strontium titanium zirconium complexes 111-96-6D, Diglyme, barium strontium titanium zirconium complexes 112-49-2D, Triglyme, barium strontium titanium zirconium complexes 143-24-8D, Tetraglyme, barium strontium titanium zirconium complexes 629-20-9D, Cyclooctatetraene, barium strontium titanium zirconium complexes **754-05-2D**, Vinyltrimethylsilane, barium strontium titanium zirconium complexes **762-72-1D**, Allyltrimethylsilane, barium strontium titanium zirconium complexes 3030-47-5D, Pentamethyldiethylenetriamine, barium strontium titanium zirconium complexes 7782-44-7, Oxygen, processes 10024-97-2, Nitrogen oxide (N2O), processes 10028-15-6, Ozone, processes 18865-74-2, Tetrakis(2,2,6,6-tetramethylheptane-3,5-dionato)zirconium 144665-26-9 152759-61-0 204522-78-1 349655-45-4 396096-57-4
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)

IT 7440-67-7, Zirconium, uses
RL: MOA (Modifier or additive use); USES (Uses)
(zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)

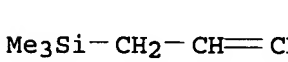
IT 37303-24-5P, Barium strontium titanium oxide (Ba0-1Sr0-1TiO3) 106804-17-5P
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)

IT **754-05-2D**, Vinyltrimethylsilane, barium strontium titanium zirconium complexes **762-72-1D**, Allyltrimethylsilane, barium strontium titanium zirconium complexes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(zirconium-doped barium strontium titanate materials and MOCVD deposition as dielec. **films** for microelectronic devices)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)

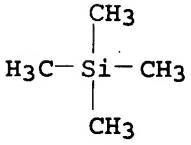


RN 762-72-1 HCAPLUS
CN Silane, trimethyl-2-propen-1-yl- (CA INDEX NAME)



L24 ANSWER 28 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:426086 HCAPLUS
DN 137:23302
TI Chemical vapor phase synthesis and characterization of nanocrystalline gradient films
AU Seifried, Stefan
CS Nidderau, Germany
SO Fortschritt-Berichte VDI, Reihe 3: Verfahrenstechnik (2002), 730, i-vi,1-114
CODEN: FVVEFK; ISSN: 0178-9503
PB VDI Verlag GmbH
DT Journal
LA German
AB A modified CVD method called chemical vapor synthesis is further developed for graded ceramic film preparation TiO2 films with a graded microstructure are deposited on macroporous substrates. Si-C-B films and Ti-O-Si films as both monolayer as well as one dimensional gradient composite layers were performed by pyrolysis of metal organic precursors. These layers could be recognized as mesoporous membranes by dead-end filtration method. Their layer microstructure was analyzed by high-resolution REM, XRD, N2 adsorption, SEM, and small angle neutron diffraction. In monolayers essential layer characteristics such as microstructure could be affected by deposition parameter changes such as precursor mass flow and process temperature and successful applied in multilayer deposition too. Furthermore significant is the influence of particularly substrate positioning in the reactor on microstructure evolution, porosity, and chemical composition
CC 57-2 (Ceramics)
Section cross-reference(s): 75
IT Nanocrystalline materials
(ceramic graded **films**; metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films**)
IT **Films**
(ceramic, nanocryst.; metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films**)
IT Filters
(ceramic; metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films** for)
IT Ceramics
(**films**, nanocryst.; metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films**)
IT Ceramics
(filters; metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films** for)
IT Composites
(functionally gradient; metalorg. CVD synthesis and characterization of

nanocryst. gradient ceramic **films**)
IT Porous materials
(mesoporous; metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films** for)
IT Ceramic membranes
Grain size
Microstructure
Nanocrystals
Nanostructures
Phase composition
Porosity
Thermal decomposition
Vapor deposition apparatus
(**metalorg.** CVD synthesis and characterization of nanocryst. gradient ceramic **films**)
IT Membrane filters
(metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films** for)
IT **Vapor deposition** process
(**metalorg.**; **metalorg.** CVD synthesis and characterization of nanocryst. gradient ceramic **films**)
IT **Films**
(multilayer, ceramic graded; metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films**)
IT 409-21-2P, Silicon carbide (SiC), preparation 7631-86-9P, Silica, preparation 12069-32-8P, Boron carbide (B4C) 13463-67-7P, Titania, preparation
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films**)
IT **75-76-3**, Tetramethyl silane 78-10-4, Tetraethyl ortho silicate 97-94-9, Triethyl borane 546-68-9, Tetraisopropyl orthotitanate
RL: RCT (Reactant); RACT (Reactant or reagent)
(metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films**)
IT **75-76-3**, Tetramethyl silane
RL: RCT (Reactant); RACT (Reactant or reagent)
(metalorg. CVD synthesis and characterization of nanocryst. gradient ceramic **films**)
RN 75-76-3 HCAPLUS
CN Silane, tetramethyl- (CA INDEX NAME)



RE.CNT 110 THERE ARE 110 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 29 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:349107 HCAPLUS
DN 136:349272
TI Procedure for the fabrication of a copper metal line in a semiconductor module
IN Pyo, Sung Gyu

PA Hynix Semiconductor Inc., S. Korea
SO Ger. Offen., 12 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 10150160	A1	20020508	DE 2001-10150160	20011011 <--
PRAI KR 2000-6316	A	20001026 <--		

AB A procedure for manufacturing a metal line of a semiconductor module is presented. A Cu thin film is deposited on a diffusion barrier film, after the diffusion barrier is treated with a chemical support medium under plasma, so that the imbedding characteristics of a via hole with ultra-fine structure are improved. The procedure contains the following steps: manufacturing an interlayer dielec. film on a semiconductor substrate with a pre-determined lower structure; manufacturing a fine sample in the inter-layer dielec. film; manufacturing a diffusion barrier film on the entire structure with the fine pattern; depositing the diffusion barrier film with a chemical support medium to form a film of the same on the diffusion barrier film; implementing a plasma treatment; manufacturing a Cu thin film on the entire structure to embed the fine pattern; and implementing a polishing process for exposing the top side of the inter-layer dielec. film, so that the Cu thin film remains only within the fine sample.

IC H01L217-68
CC 76-3 (Electric Phenomena)

IT **Vapor deposition** process
(chemical; procedure for fabrication of a copper metal line in a semiconductor module)

IT **Vapor deposition** process
(**metalorg.**; procedure for fabrication of a copper metal line in a semiconductor module)

IT **Vapor deposition** process
(phys.; procedure for fabrication of a copper metal line in a semiconductor module)

IT Etching
Vapor deposition process
(plasma; procedure for fabrication of a copper metal line in a semiconductor module)

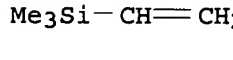
IT Dielectric **films**
Diffusion barrier
Interconnections, electric
Semiconductor device fabrication
(procedure for fabrication of a copper metal line in a semiconductor module)

IT 146249-70-9, (Hfac)Cu(3-hexyne)
RL: RCT (Reactant); RACT (Reactant or reagent)
((Hfac)Cu(3-hexyne), copper **vapor deposition** precursor; procedure for fabrication of a copper metal line in a semiconductor module)

IT 244188-25-8, (Hfac)CuDMB
RL: RCT (Reactant); RACT (Reactant or reagent)
((Hfac)CuDMB, copper **vapor deposition** precursor; procedure for fabrication of a copper metal line in a semiconductor module)

IT 142277-08-5, (Hfac)CuDMCOD
RL: RCT (Reactant); RACT (Reactant or reagent)
((Hfac)CuDMCOD, copper **vapor deposition** precursor; procedure for fabrication of a copper metal line in a semiconductor module)

IT 192817-15-5, (Hfac)CuMHY
RL: RCT (Reactant); RACT (Reactant or reagent)
((Hfac)CuMHY, copper **vapor deposition** precursor; procedure for fabrication of a copper metal line in a semiconductor module)
IT 139566-53-3, (Hfac)CuTVMS
RL: RCT (Reactant); RACT (Reactant or reagent)
((Hfac)CuTVMS, copper **vapor deposition** precursor; procedure for fabrication of a copper metal line in a semiconductor module)
IT 174202-57-4, (Hfac)CuVTMOS
RL: RCT (Reactant); RACT (Reactant or reagent)
((Hfac)CuVTMOS, copper **vapor deposition** precursor; procedure for fabrication of a copper metal line in a semiconductor module)
IT **754-05-2**, Trimethylvinylsilane 1522-22-1, Hexafluoroacetylacetone 7440-68-8D, Astatine, compds. 7553-56-2, Iodine, processes 7726-95-6D, Bromine, compds. 7782-41-4D, Fluorine, compds. 7782-50-5D, Chlorine, compds.
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(chemical support; procedure for fabrication of a copper metal line in a semiconductor module)
IT **754-05-2**, Trimethylvinylsilane
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(chemical support; procedure for fabrication of a copper metal line in a semiconductor module)
RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



L24 ANSWER 30 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:332653 HCAPLUS
DN 136:362513
TI Method for forming metal line in a semiconductor device
IN Pyo, Sung Gyu
PA Hynix Semiconductor Inc., S. Korea
SO U.S. Pat. Appl. Publ., 17 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002052110	A1	20020502	US 2001-983668	20011025 <--
	US 6551932	B2	20030422		
	KR 2002032709	A	20020504	KR 2000-63161	20001026 <--
	GB 2371148	A	20020717	GB 2001-21858	20010910 <--
	GB 2371148	B	20050309		
	TW 515044	B	20021221	TW 2001-90122383	20010910 <--
	JP 2002190524	A	20020705	JP 2001-313549	20011011 <--
	CN 1351374	A	20020529	CN 2001-135597	20011025 <--
PRAI	KR 2000-63161	A	20001026 <--		

AB A method for forming a metal line of a semiconductor device is disclosed, in which a Cu thin film is deposited on a diffusion barrier film after a

chemical enhancer and plasma are applied thereon, thereby improving fill characteristics of a contact hole having a ultra-fine structure. The method for forming a metal line in a semiconductor device includes the steps of forming an inter-layer insulating film on a semiconductor substrate having a predetd. lower structure, forming a damascene pattern in the inter-layer insulating film, forming a diffusion barrier film on a whole structure having the damascene pattern, applying a chemical enhancer on the diffusion barrier film to form a chemical enhancer film on the diffusion barrier film, performing plasma treatment, forming a Cu thin film on the whole structure to fill the damascene pattern, and performing a polishing process to expose an upper surface of the inter-layer insulating film so that the Cu thin film only remains within the damascene pattern.

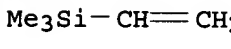
IC ICM H01L021-4763
ICS H01L021-44
INCL 438687000
CC 76-3 (Electric Phenomena)
IT **Vapor deposition** process
(chemical; method for forming metal line in a semiconductor device)
IT **Vapor deposition** process
(**metalorg.**; method for forming metal line in a semiconductor device)
IT Contact holes
Dielectric **films**
Diffusion barrier
Electric insulators
Etching
Interconnections, electric
Polishing
Semiconductor device fabrication
(method for forming metal line in a semiconductor device)
IT **Vapor deposition** process
(phys.; method for forming metal line in a semiconductor device)
IT 146249-70-9, Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[(3,4-η)-3-hexyne]-
RL: RCT (Reactant); RACT (Reactant or reagent)
((hfac)Cu(3-hexyne), **vapor deposition** precursor; method for forming metal line in a semiconductor device)
IT 244188-25-8, Copper, [(1,2-η)-3,3-dimethyl-1-butene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')-
RL: RCT (Reactant); RACT (Reactant or reagent)
((hfac)CuDMB, **vapor deposition** precursor; method for forming metal line in a semiconductor device)
IT 142277-08-5, Copper, [(1,2,5,6-η)-1,5-dimethyl-1,5-cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')-
RL: RCT (Reactant); RACT (Reactant or reagent)
((hfac)CuDMCOD, **vapor deposition** precursor; method for forming metal line in a semiconductor device)
IT 192817-15-5, Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[(3,4-η)-2-methyl-1-hexen-3-yne]-
RL: RCT (Reactant); RACT (Reactant or reagent)
((hfac)CuMHY, **vapor deposition** precursor; method for forming metal line in a semiconductor device)
IT 139566-53-3, Copper, [(η2-ethenyl)trimethylsilane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')-
RL: RCT (Reactant); RACT (Reactant or reagent)
((hfac)CuTMVS, **vapor deposition** precursor; method for forming metal line in a semiconductor device)
IT 174202-57-4, Copper, [(η2-ethenyl)trimethoxysilane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')-

RL: RCT (Reactant); RACT (Reactant or reagent)
((hfac)CuVTMOS, **vapor deposition** precursor; method for forming metal line in a semiconductor device)

IT **754-05-2**, Trimethylvinylsilane 1522-22-1, 1,1,1,5,5,5-Hexafluoro-2,4-pentanedione
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(enhancer; method for forming metal line in a semiconductor device)

IT **754-05-2**, Trimethylvinylsilane
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(enhancer; method for forming metal line in a semiconductor device)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



L24 ANSWER 31 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:253455 HCAPLUS
DN 136:286887
TI Formation of metal wirings for semiconductor devices
IN Pyo, Sang Kyu
PA Hynix Semiconductor Co., Ltd., S. Korea
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002100630	A	20020405	JP 2001-186251	20010620 <--
	US 2002048949	A1	20020425	US 2001-875623	20010606 <--
	US 6436826	B2	20020820		
	TW 518715	B	20030121	TW 2001-90114708	20010618 <--
PRAI	KR 2000-33981	A	20000620 <--		

AB The method involves the following steps (1) preparing semiconductor substrates containing elec. insulating films having damascene patterns, (2) forming diffusion-preventing films on the insulating films, (3) forming chemical reinforced layers on the diffusion-preventing films, (4) treating the reinforced layers with plasma to remove the reinforced layers other than bottom parts of the patterns, (5) forming Cu layers by CVD, (6) heating in a reducing atom., and (7) mechanochem. polishing. Cu is selectively deposited because of formation of chemical reinforced layers accelerating Cu deposition on the bottom parts of the patterns.

IC ICM H01L021-3205
ICS C23C016-18; H01L021-285; H01L021-768
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 76

IT **Vapor deposition** process
(**metalorg.**; formation of metal wirings by selective CVD using chemical reinforced layers for semiconductor devices)

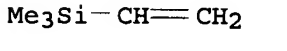
IT 74-88-4, Methyl iodide, uses 75-03-6, Ethyl iodide 75-11-6, Methylene diiodide **754-05-2**, Trimethylvinylsilane 865-50-9, Methyl iodide (CD3I) 1522-22-1, Hexafluoroacetylacetone 7440-68-8, Astatine, uses 7553-56-2, Iodine, uses 7726-95-6, Bromine, uses 7782-41-4, Fluorine, uses 7782-50-5, Chlorine, uses
RL: CAT (Catalyst use); USES (Uses)

(catalysts in manufacture of chemical reinforced layers; formation of metal wirings by selective CVD using chemical reinforced layers for semiconductor devices)

IT 7440-25-7, Tantalum, uses 12033-62-4, Tantalum nitride 12058-38-7, Tungsten nitride (WN) 25583-20-4, Titanium nitride 99039-55-1, Tantalum nitride silicide 113151-72-7, Aluminum titanium nitride 121368-53-4, Silicon titanium nitride
RL: TEM (Technical or engineered material use); USES (Uses)
(diffusion-preventing **films**; formation of metal wirings by selective CVD using chemical reinforced layers for semiconductor devices)

IT **754-05-2**, Trimethylvinylsilane
RL: CAT (Catalyst use); USES (Uses)
(catalysts in manufacture of chemical reinforced layers; formation of metal wirings by selective CVD using chemical reinforced layers for semiconductor devices)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



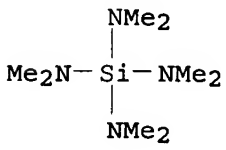
L24 ANSWER 32 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:243812 HCAPLUS
DN 137:39488
TI Composition control of Hf1-xSixO2 films deposited on Si by chemical-**vapor deposition** using amide precursors
AU Hendrix, B. C.; Borovik, A. S.; Xu, C.; Roeder, J. F.; Baum, T. H.; Bevan, M. J.; Visokay, M. R.; Chambers, J. J.; Rotondaro, A. L. P.; Bu, H.; Colombo, L.
CS ATMI, Danbury, CT, 06810, USA
SO Applied Physics Letters (**2002**), 80(13), 2362-2364
CODEN: APPLAB; ISSN: 0003-6951
PB American Institute of Physics
DT Journal
LA English
AB Hf silicate (Hf1-xSixO2) films were deposited by metalorg. CVD with composition x ranging from 0 to 1 using amide precursors in an organic solvent. The liquid precursors, tetrakis(diethylamido)hafnium, Hf[NEt2]4, and tetrakis(dimethylamido)silicon, Si[NMe2]4, are compatible when mixed in solution, have high elemental purity, and exhibit a low halogen content. Thin oxide films were deposited with these precursors over a range of wafer temps. from 400 to 600° with very low C and N incorporation.
Control of the film composition is attained by changing the ratio of Si concentration to Hf concentration in the precursor solution for specific deposition conditions.
Composition and growth rate are reported as a function of process condition. Interfacial layers of <10 Å were observed by high-resolution TEM.
CC 75-1 (Crystallography and Liquid Crystals)
IT Physical process kinetics
(composition control and growth rate of Hf1-xSixO2 **films** deposited on Si by metalorg. CVD using amide precursors)
IT **Vapor deposition** process
(**metalorg.**; composition control and growth rate of Hf1-xSixO2 **films deposited** on Si by **metalorg.** CVD using amide precursors)
IT 153023-57-5, Hafnium silicon oxide ((Hf,Si)O2)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP

(Physical process); PROC (Process)
(composition control and growth rate of Hf1-xSixO2 **films** deposited on Si by metalorg. CVD using amide precursors)

IT **1624-01-7**, Tetrakis(dimethylamido)silicon 19824-55-6, Tetrakis(diethylamido)hafnium
RL: RCT (Reactant); RACT (Reactant or reagent)
(composition control and growth rate of Hf1-xSixO2 **films** deposited on Si by metalorg. CVD using amide precursors)

IT **1624-01-7**, Tetrakis(dimethylamido)silicon
RL: RCT (Reactant); RACT (Reactant or reagent)
(composition control and growth rate of Hf1-xSixO2 **films** deposited on Si by metalorg. CVD using amide precursors)

RN 1624-01-7 HCAPLUS
CN Silanetetramine, N,N,N',N',N'',N'',N''',N'''-octamethyl- (CA INDEX NAME)



RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 33 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:214926 HCAPLUS
DN 136:270908
TI MOCVD precursors based on organometalloid ligands
IN Welch, John T.; Toscano, Paul J.; Claessen, Rolf; Kornilov, Andrei; Banger, Kulbinder Kumar
PA Research Foundation of State University of New York, USA
SO U.S., 12 pp., Cont.-in-part of U.S. 6,184,403.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6359159	B1	20020319	US 2000-729115	20001204 <--
	US 6184403	B1	20010206	US 1999-314311	19990519 <--
PRAI	US 1999-314311	A2	19990519 <--		

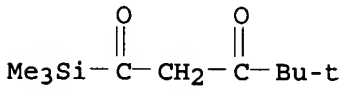
OS MARPAT 136:270908
AB CVD processes use as precursors volatile metal complexes with ligands containing metalloid elements Si, Ge, Sn or lead.
IC ICM C07F007-02
ICS C07F001-08; C07F001-10; C07F015-06
INCL 556012000
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 29
IT **Vapor deposition** process
(**metalorg.**; MOCVD precursors based on organometalloid ligands)
IT 7440-50-8, Copper, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(deposition of copper **films** using precursors based on organometalloid ligands)
IT **286854-89-5P 286854-95-3P 306307-60-8P**

306307-61-9P 306307-62-0P 306307-63-1P
306307-65-3P 306307-66-4P 306307-67-5P
306307-68-6P 375855-16-6P **390802-76-3P**
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(intermediate; synthesis of MOCVD precursors based on organometalloid ligands)

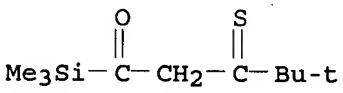
IT 108-18-9, Diisopropylamine 109-72-8, n-Butyllithium, reactions 598-98-1 3282-30-2, Trimethylacetylchloride 5469-26-1, Bromopinacolone 7787-70-4, Copper bromide (CuBr) 13411-42-2 **13411-48-8**, Acetyltrimethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant; synthesis of silyl β-diketonate)

IT **286854-89-5P 286854-95-3P 306307-60-8P**
306307-61-9P 306307-62-0P 306307-63-1P
306307-65-3P 306307-66-4P 306307-67-5P
306307-68-6P 390802-76-3P
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(intermediate; synthesis of MOCVD precursors based on organometalloid ligands)

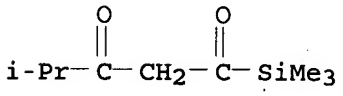
RN 286854-89-5 HCAPLUS
CN 3-Pentanone, 4,4-dimethyl-1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



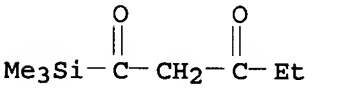
RN 286854-95-3 HCAPLUS
CN 3-Pentanethione, 4,4-dimethyl-1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



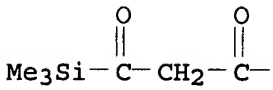
RN 306307-60-8 HCAPLUS
CN 3-Pentanone, 4-methyl-1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



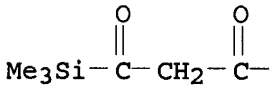
RN 306307-61-9 HCAPLUS
CN 3-Pentanone, 1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



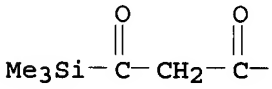
RN 306307-62-0 HCAPLUS
CN 3-Hexanone, 1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



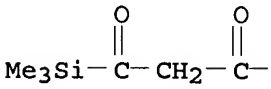
RN 306307-63-1 HCAPLUS
CN 3-Hexanone, 5-methyl-1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



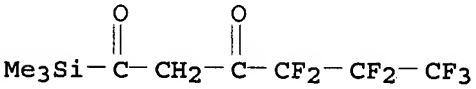
RN 306307-65-3 HCAPLUS
CN 3-Heptanone, 1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



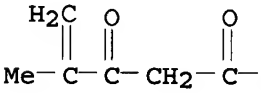
RN 306307-66-4 HCAPLUS
CN 2-Butanone, 1,1,1-trifluoro-4-oxo-4-(trimethylsilyl)- (9CI) (CA INDEX NAME)



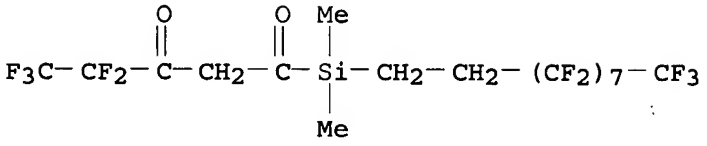
RN 306307-67-5 HCAPLUS
CN 3-Hexanone, 4,4,5,5,6,6,6-heptafluoro-1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



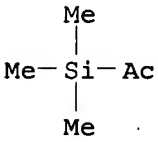
RN 306307-68-6 HCAPLUS
CN 1-Penten-3-one, 2-methyl-5-oxo-5-(trimethylsilyl)- (9CI) (CA INDEX NAME)



RN 390802-76-3 HCAPLUS
CN 3-Pentanone, 1,1,1,2,2-pentafluoro-5-[(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)dimethylsilyl]-5-oxo- (9CI) (CA INDEX NAME)



IT **13411-48-8**, Acetyltrimethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant; synthesis of silyl β-diketonate)
RN 13411-48-8 HCAPLUS
CN Silane, acetyltrimethyl- (CA INDEX NAME)



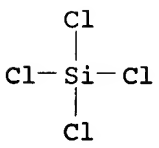
RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 34 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:182139 HCAPLUS
DN 136:225357
TI Method of manufacturing a capacitor with tantalum oxide film in a semiconductor device
IN Cho, Ho Jin
PA Hyundai Electronics Industries Co., Ltd., S. Korea
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6355521	B1	20020312	US 2000-659509	20000911 <--
	KR 2001027083	A	20010406	KR 1999-38660	19990910 <--
PRAI	KR 1999-38660	A	19990910 <--		

AB The present invention discloses a method of manufacturing a capacitor in a semiconductor device which is directed to solve the problem of reduction of capacitance occurring when manufacturing a capacitor of a MIS structure using poly-Si as an underlying electrode and metal as an upper electrode in a capacitor using Ta2O5 as a dielec. film. In order to solve the problem, the present invention forms an underlying electrode using metal having a good oxide-resistant such as TiSiN. Thus, the present invention could not only lower the thickness of the effective oxide film of Ta2O5 when depositing Ta2O5 or performing a thermal process for crystallization but also prevent increase of a leak current due to oxidization of the underlying electrode and the diffusion prevention film, thus securing the capacitance of the capacitor and improving the elec. characteristic of the capacitor.
IC ICM H01L021-336
INCL 438254000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 75
IT **Vapor deposition** process
(chemical; in capacitor manufacturing in semiconductor device)

IT **Films**
(elec. conductive; in capacitor manufacturing in semiconductor device)
IT Electric conductors
(**films**; in capacitor manufacturing in semiconductor device)
IT **Vapor deposition** process
(**metalorg.**; in capacitor manufacturing in semiconductor device)
IT Dielectric **films**
(tantalum oxide; in capacitor manufacturing in semiconductor device)
IT 7550-45-0, Titanium tetrachloride, processes **10026-04-7**, Silicon tetrachloride 13569-32-9, Silicon dichloride 19165-34-5, Silicon trichloride
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(TiSiN deposition; in capacitor manufacturing in semiconductor device)
IT 12738-91-9, Titanium silicide 52953-72-7, Tantalum silicide
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(contact **film**; in capacitor manufacturing in semiconductor device)
IT 1314-61-0, Tantalum pentoxide
RL: DEV (Device component use); USES (Uses)
(dielec. **film** in capacitor manufacturing in semiconductor device)
IT **10026-04-7**, Silicon tetrachloride
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(TiSiN deposition; in capacitor manufacturing in semiconductor device)
RN 10026-04-7 HCAPLUS
CN Silane, tetrachloro- (CA INDEX NAME)



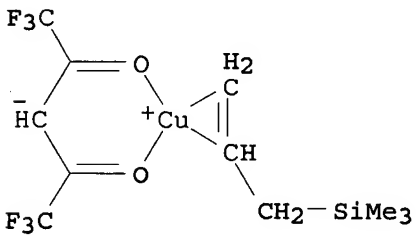
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 35 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:169969 HCAPLUS
DN 136:225233
TI CVD method, auxiliary source material for CVD, and film and device fabricated by CVD
IN Funakubo, Hiroshi; Murakami, Yasushi; Machida, Hideaki
PA Tri Chemical Laboratory Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002069639	A	20020308	JP 2000-265521	20000901 <--
	JP 3478389	B2	20031215		
	US 2002055001	A1	20020509	US 2001-943459	20010831 <--
	US 2003203112	A1	20031030	US 2003-422983	20030425 <--

US 6773750 B2 20040810
US 2003205168 A1 20031106 US 2003-422982 20030425 <--
PRAI JP 2000-265521 A 20000901 <--
US 2001-943459 A3 20010831 <--
OS MARPAT 136:225233
AB A CVD method uses β-diketonate complex and α,β-unsatd. alc. for deposition of a film of a metal, metal oxide, metal nitride, or metal carbide at a low temperature Specifically, the film may comprise a composite oxide film containing Ru+Sr, Ti+Ba+Sr, Ti+Bi, Sr+Ta+Bi, Sr+Ta+Nb, Pb+Zr+Ti, or Zr+Hf+La (or a conductive film containing Ru+Pt+Ir, Cu).
IC ICM C23C016-18
ICS H01L021-316
CC 76-3 (Electric Phenomena)
IT Electronic device fabrication
(CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT **Films**
(elec. conductive; CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT Electric conductors
(**films**; CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT **Vapor deposition** process
(**metalorg.**; CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT 1312-81-8, Lanthanum oxide 1314-23-4, Zirconium oxide, processes 11115-71-2, Bismuth titanium oxide 12055-23-1, Hafnium oxide 12169-14-1, Ruthenium strontium oxide (RuSrO3) 37305-87-6, Barium strontium titanium oxide 53572-00-2, Bismuth strontium titanium oxide 152060-61-2, Lead titanium zirconium oxide 159101-44-7, Lanthanum silicon oxide 174633-44-4, Silicon zirconium oxide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT 107-18-6, 2-Propen-1-ol, uses 111-28-4, 2,4-Hexadien-1-ol 115-18-4 556-82-1, 3-Methyl-2-butene-1-ol 598-32-3, 3-Buten-2-ol 616-25-1, 1-Penten-3-ol 928-94-9, cis-2-Hexen-1-ol 928-95-0, trans-2-Hexen-1-ol 1118-71-4D, Dipivaloylmethane, transition metal and alkaline earth polyene complexes 4798-44-1, 1-Hexen-3-ol 6117-91-5, Crotyl alcohol 7319-23-5, 3-Hexene-2,5-diol 7439-92-1D, Lead, dipivaloylmethane polyene complexes 7440-18-8D, Ruthenium, dipivaloylmethane polyene complexes 7440-24-6D, Strontium, dipivaloylmethane polyene complexes 7440-39-3D, Barium, dipivaloylmethane polyene complexes 7440-70-2D, Calcium, dipivaloylmethane polyene complexes 14319-13-2 38625-54-6 63370-90-1 65353-51-7 137039-38-4 139566-53-3 142617-53-6 144665-26-9 **173341-67-8**
RL: NUU (Other use, unclassified); USES (Uses)
(CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT 17594-47-7, Barium bis(dipivaloylmethanate)
RL: NUU (Other use, unclassified); USES (Uses)
(DPM2Ba; CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT 118448-18-3, Calcium bis(dipivaloylmethanate)
RL: NUU (Other use, unclassified); USES (Uses)
(DPM2Ca; CVD method, α,β-unsatd. alc. auxiliary source

material for CVD, and **film** and device fabricated by CVD)
IT 21319-43-7, Lead bis(dipivaloylmethanate)
RL: NUU (Other use, unclassified); USES (Uses)
(DPM2Pb; CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT 36830-74-7, Strontium bis(dipivaloylmethanate)
RL: NUU (Other use, unclassified); USES (Uses)
(DPM2Sr; CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT 18865-74-2, Zirconium tetrakis(dipivaloylmethanate)
RL: NUU (Other use, unclassified); USES (Uses)
(DPM4Zr; CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
IT **173341-67-8**
RL: NUU (Other use, unclassified); USES (Uses)
(CVD method, α,β-unsatd. alc. auxiliary source material for CVD, and **film** and device fabricated by CVD)
RN 173341-67-8 HCAPLUS
CN Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[(2,3-η)-trimethyl-2-propenylsilane]- (9CI) (CA INDEX NAME)

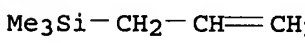


L24 ANSWER 36 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:123572 HCAPLUS
DN 136:192671
TI Manufacture of semiconductor device with copper wiring using CVD and light
IN Ohtsuka, Nobuyuki; Shimizu, Noriyoshi
PA Fujitsu Limited, Japan
SO U.S. Pat. Appl. Publ., 10 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

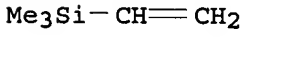
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002019131	A1	20020214	US 2001-811525	20010320 <--
US 6746957	B2	20040608		
JP 2002057126	A	20020222	JP 2000-242816	20000810 <--
DE 10120184	A1	20020228	DE 2001-10120184	20010424 <--
PRAI JP 2000-242816	A	20000810 <--		

AB A method of manufacturing a semiconductor device has the steps of: (a) preparing a semiconductor substrate formed with an insulating layer having a wiring recess and (b) forming a conductive layer by CVD on a surface of the semiconductor substrate including an inner surface of the wiring recess, while lamp light is applied to the semiconductor substrate, the conductive layer being substantially made of Cu. With this method, Cu wiring having a high adhesion force is formed by CVD.

IC ICM H01L021-44
INCL 438687000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 75
IT **Vapor deposition** process
(chemical; manufacture of semiconductor device with copper wiring)
IT **Films**
(elec. conductive; manufacture of semiconductor device with copper wiring)
IT Electric conductors
(**films**; manufacture of semiconductor device with copper wiring)
IT Adhesion, physical
Contact holes
Dielectric **films**
Interconnections, electric
Semiconductor device fabrication
(manufacture of semiconductor device with copper wiring)
IT **Vapor deposition** process
(**metalorg.**; manufacture of semiconductor device with copper wiring using)
IT 111-78-4D, 1,5-Cyclooctadiene, copper hfac complexes 503-17-3D, 2-Butyne, copper hexafluoroacetylacetone complexes **762-72-1D**, Trimethylallylsilane, copper hexafluoroacetylacetone complexes 14630-40-1D, Bis(trimethylsilyl)acetylene, copper hexafluoroacetylacetone complexes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manufacture of semiconductor device with copper wiring using)
IT **754-05-2D**, Trimethylvinylsilane, copper complexes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(reaction regulator; manufacture of semiconductor device with copper wiring using CVD and light)
IT **762-72-1D**, Trimethylallylsilane, copper hexafluoroacetylacetone complexes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manufacture of semiconductor device with copper wiring using)
RN 762-72-1 HCAPLUS
CN Silane, trimethyl-2-propen-1-yl- (CA INDEX NAME)



IT **754-05-2D**, Trimethylvinylsilane, copper complexes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(reaction regulator; manufacture of semiconductor device with copper wiring using CVD and light)
RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 37 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN

KATHLEEN FULLER EIC1700 571/272-2505

AN 2002:88287 HCAPLUS
DN 136:255078
TI Deposition of conductive films onto silicon, germanium, and SiO2/Si structures via pyrolysis of titanocene and zirconocene dichlorides in the presence of organosilicon compounds
AU Mittov, O. N.; Ponomareva, N. I.; Mittova, I. Ya.; Bezryadin, M. N.
CS Voronezh State University, Voronezh, 394693, Russia
SO Inorganic Materials (Translation of Neorganicheskie Materialy) (2002), 38(1), 34-38
CODEN: INOMAF; ISSN: 0020-1685
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB Conductive films were grown on Si, Ge, and SiO2/Si structures by CVD using bis(cyclopentadienyl)titanium dichloride (titanocene dichloride) and bis(cyclopentadienyl)zirconium dichloride (zirconocene dichloride). The composition and properties of the films were then modified by annealing in an atmospheric of organosilicon compds. Films were also produced by deposition from mixts. of titanocene or zirconocene dichloride and organosilicon compds. The elemental and phase compns. of the films were determined by Auger electron spectroscopy and x-ray diffraction anal.
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 75
IT Annealing
Electric resistance
Phase composition
Thermal decomposition
Thickness
(deposition of conductive **films** onto silicon, germanium, and silica/silicon structures via pyrolysis of titanocene and zirconocene dichlorides in presence of organosilicon compds.)
IT Silanes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(deposition of conductive **films** onto silicon, germanium, and silica/silicon structures via pyrolysis of titanocene and zirconocene dichlorides in presence of organosilicon compds.)
IT **Films**
(elec. conductive; deposition of conductive **films** onto silicon, germanium, and silica/silicon structures via pyrolysis of titanocene and zirconocene dichlorides in presence of organosilicon compds.)
IT Electric conductors
(**films**; deposition of conductive **films** onto silicon, germanium, and silica/silicon structures via pyrolysis of titanocene and zirconocene dichlorides in presence of organosilicon compds.)
IT **Vapor deposition** process
(**metalorg.**; **deposition** of conductive **films** onto silicon, germanium, and silica/silicon structures via pyrolysis of titanocene and zirconocene dichlorides in presence of organosilicon compds.)
IT **75-78-5**, Dichlorodimethylsilane **75-79-6**, Methyltrichlorosilane 999-97-3, Hexamethyldisilazane 1271-19-8, Bis(cyclopentadienyl)titanium dichloride 1291-32-3, Bis(cyclopentadienyl)zirconium dichloride
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(deposition of conductive **films** onto silicon, germanium, and

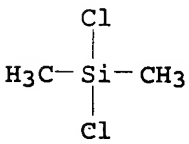
silica/silicon structures via pyrolysis of titanocene and zirconocene dichlorides in presence of organosilicon compds.)

IT 7440-32-6, Titanium, formation (nonpreparative) 7440-44-0, Carbon, formation (nonpreparative) 12039-70-2, Titanium silicide (TiSi) 12039-83-7, Titanium silicide (TiSi2) 12067-57-1, Titanium silicide (Ti5Si3) 12143-58-7, Titanium oxide (Ti7O13) 13463-67-7, Titanium oxide (TiO2), formation (nonpreparative) 20619-16-3, Germanium oxide (GeO)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(deposition of conductive **films** onto silicon, germanium, and silica/silicon structures via pyrolysis of titanocene and zirconocene dichlorides in presence of organosilicon compds.)

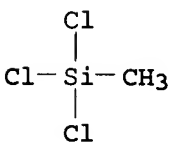
IT 7440-21-3, Silicon, processes 7440-56-4, Germanium, processes 7631-86-9, Silica, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(deposition of conductive **films** onto silicon, germanium, and silica/silicon structures via pyrolysis of titanocene and zirconocene dichlorides in presence of organosilicon compds.)

IT **75-78-5**, Dichlorodimethylsilane **75-79-6**, Methyltrichlorosilane
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(deposition of conductive **films** onto silicon, germanium, and silica/silicon structures via pyrolysis of titanocene and zirconocene dichlorides in presence of organosilicon compds.)

RN 75-78-5 HCAPLUS
CN Silane, dichlorodimethyl- (CA INDEX NAME)



RN 75-79-6 HCAPLUS
CN Silane, trichloromethyl- (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 38 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:72782 HCAPLUS
DN 136:143637
TI Method of forming a metal wiring in a semiconductor device
IN Pyo, Sung Gyu
PA S. Korea
SO U.S. Pat. Appl. Publ., 6 pp.
CODEN: USXXCO
DT Patent

LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002009884	A1	20020124	US 2001-874505	20010605 <--
	US 6593236	B2	20030715		
	KR 2002000237	A	20020105	KR 2000-33984	20000620 <--
	JP 2002083813	A	20020322	JP 2001-184675	20010619 <--
PRAI	KR 2000-33984	A	20000620 <--		

AB A method of forming a metal wiring in a semiconductor device is presented. A Cu wiring is formed by means of CECVD method by which a chemical enhancer layer is used for increasing the deposition speed of Cu. The damascene pattern is filled by means of MOCVD method using a Cu precursor to increase the deposition speed. The chemical enhancer layer rises to the surface of Cu after deposition of Cu by a CECVD method and then the relatively high resistivity chemical enhancer layer that has risen to the surface of Cu by plasma process is removed. Therefore, the ultra-fine damascene pattern can be rapidly filled with Cu without increasing the resistance of the Cu wiring.

IC ICM H01L021-44
INCL 438687000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 29, 75
ST semiconductor device fabrication copper interconnection metalorg chem **vapor deposition**; copper metal wiring layer **vapor deposition** semiconductor device
IT Water vapor
(catalyst for chemical enhancer layer formation; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT **Vapor deposition** process
(chemical, chemical-enhanced; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT Polishing
(chemical-mech.; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT Annealing
(hydrogen reduction; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT Dielectric **films**
(interlayer; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT **Vapor deposition** process
(**metalorg.**; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT Diffusion barrier
Interconnections, electric
Semiconductor device fabrication
(method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT **Vapor deposition** process
(plasma; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT 7440-25-7, Tantalum, processes 12033-62-4, Tantalum nitride
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(CVD, ionized PVD; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT 37359-53-8, Tungsten nitride 99039-55-1, Tantalum nitride silicide 113151-72-7, Aluminum titanium nitride 121368-53-4, Titanium nitride

silicide
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(CVD; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 139566-53-3 174202-57-4 244188-25-8
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(Cu MOCVD precursor; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 25583-20-4, Titanium nitride
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(PVD, CVD, MOCVD; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 74-88-4, Iodomethane, uses 75-03-6, Iodoethane 75-11-6, Diiodomethane **754-05-2**, Trimethylvinylsilane 865-50-9 1522-22-1 7440-68-8, Astatine, uses 7553-56-2, Iodine, uses 7726-95-6, Bromine, uses 7782-41-4, Fluorine, uses 7782-50-5, Chlorine, uses
RL: CAT (Catalyst use); USES (Uses)
(catalyst for chemical enhancer layer formation; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

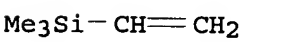
IT 11105-01-4, Silicon nitride oxide 12033-89-5, Silicon nitride, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(diffusion prevention **film** spacer; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 1333-74-0, Hydrogen, processes 7440-37-1, Argon, processes 7664-41-7, Ammonia, processes 7727-37-9, Nitrogen, processes 7782-44-7, Oxygen, processes 10028-15-6, Ozone, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(**vapor deposition** ambient; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 7429-90-5, Aluminum, processes 7440-33-7, Tungsten, processes 7440-50-8, Copper, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(wiring layer; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT **754-05-2**, Trimethylvinylsilane
RL: CAT (Catalyst use); USES (Uses)
(catalyst for chemical enhancer layer formation; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



L24 ANSWER 39 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:51958 HCAPLUS
DN 136:111240
TI Method of forming a metal wiring in a semiconductor device

IN Pyo, Sung Gyu
PA Hynix Semiconductor Inc., S. Korea
SO U.S. Pat. Appl. Publ., 5 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002006727	A1	20020117	US 2001-875698	20010606 <--
	US 6723645	B2	20040420		
	TW 490805	B	20020611	TW 2001-90114706	20010618 <--
	JP 2002026124	A	20020125	JP 2001-184676	20010619 <--
PRAI	KR 2000-33980	A	20000620 <--		

AB A method of forming a metal wiring in a semiconductor device is disclosed. In order to improve a low deposition speed in the process technol. by which a damascene pattern of an ultra-fine structure is filled with Cu by CVD method, a CECVD method is disclosed by which a chemical enhancer layer for increasing the deposition speed of Cu is formed and the damascene pattern is then filled by means of MOCVD method using a Cu precursor which forms a Cu wiring. A diffusion prevention film is formed on the sidewall of the damascene pattern in the shape of a spacer to prevent an increase of the via resistance by the diffusion of Cu into the sidewalls of the damascene pattern. A chemical enhancer layer is selectively formed on a lower metal layer that is exposed by the damascene pattern, thus allowing a selective partial filling of the damascene pattern. Therefore, Cu filling in an ultra-fine structure is facilitated which also minimizes the elec. resistivity of the Cu wiring.
IC ICM H01L021-302
ICS H01L021-461
INCL 438689000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 29, 75
ST copper metal wiring layer **vapor deposition** semiconductor device
IT Water vapor
(catalyst for chemical enhancer layer formation; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT Polishing
(chemical-mech.; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT **Vapor deposition** process
(chemical; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT Annealing
(hydrogen reduction; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT Dielectric **films**
(interlayer; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT **Vapor deposition** process
(**metalorg.**; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT Interconnections, electric
Plasma
Semiconductor device fabrication
(method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)
IT **Vapor deposition** process

(phys.; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 7440-25-7, Tantalum, processes 12033-62-4, Tantalum nitride
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(CVD, ionized PVD; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 37359-53-8, Tungsten nitride 99039-55-1, Tantalum silicide nitride 113151-72-7, Aluminum titanium nitride 121368-53-4, Silicon titanium nitride
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(CVD; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 139566-53-3 174202-57-4 244188-25-8
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(Cu MOCVD; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 25583-20-4, Titanium nitride
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(PVD, CVD, MOCVD; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

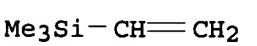
IT 74-88-4, Iodomethane, uses 75-03-6, Iodoethane 75-11-6, Diiodomethane **754-05-2**, Trimethylvinylsilane 865-50-9 1522-22-1 7553-56-2, Iodine, uses
RL: CAT (Catalyst use); USES (Uses)
(catalyst for chemical enhancer layer formation; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 11105-01-4, Silicon oxynitride 12033-89-5, Silicon nitride, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(diffusion prevention **film** spacer; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT 7429-90-5, Aluminum, processes 7440-33-7, Tungsten, processes 7440-50-8, Copper, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(wiring layer; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

IT **754-05-2**, Trimethylvinylsilane
RL: CAT (Catalyst use); USES (Uses)
(catalyst for chemical enhancer layer formation; method of forming a copper metal wiring in a semiconductor device by **vapor deposition** method)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 40 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:924305 HCAPLUS

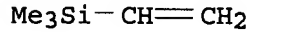
DN 136:46933
TI Method of manufacturing a copper metal wiring in a semiconductor device
IN Pyo, Sung Gyu; Kim, Si Bum
PA Hyundai Electronics Industries Co., Ltd., S. Korea
SO U.S. Pat. Appl. Publ., 6 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001053603	A1	20011220	US 2001-875625	20010606 <--
	US 6645858	B2	20031111		
	KR 2001112889	A	20011222	KR 2000-32918	20000615 <--
	JP 2002016137	A	20020118	JP 2001-93076	20010328 <--
PRAI	KR 2000-32918	A	20000615 <--		

AB A method is presented of manufacturing a Cu metal wiring in a semiconductor device, by which a plasma process is performed before a diffusion barrier layer is formed and a chemical pre-process using a chemical enhancer is performed so that Cu is deposited to form a metal wiring by a chemical enhanced CVD (CECVD) method. The method allows the chemical enhancer to be adhered on the diffusion barrier layer uniformly and stably; therefore, improving the deposition property of a Cu thin film.

IC ICM H01L021-44
INCL 438687000
CC 76-3 (Electric Phenomena)
ST copper wiring interconnection chem enhanced chem **vapor deposition**
IT **Vapor deposition** process
(chemical, chemical-enhanced; method of manufacturing a copper metal wiring in a semiconductor device)
IT **Vapor deposition** process
(**metalorg.**; method of manufacturing a copper metal wiring in a semiconductor device)
IT Dielectric **films**
Diffusion barrier
Interconnections, electric
Semiconductor device fabrication
(method of manufacturing a copper metal wiring in a semiconductor device)
IT **Vapor deposition** process
(phys.; method of manufacturing a copper metal wiring in a semiconductor device)
IT 1333-74-0, Hydrogen, processes 7440-37-1, Argon, processes 7440-59-7, Helium, processes 7727-37-9, Nitrogen, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(**vapor deposition** ambient; method of manufacturing a copper metal wiring in a semiconductor device)
IT **754-05-2**, Trimethylvinylsilane 1522-22-1, Hexafluoroacetylacetone 7553-56-2, Iodine, reactions 139566-53-3, Copper(I) hexafluoroacetylacetonate trimethylvinylsilane 174202-57-4 244188-25-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(**vapor deposition** precursor; method of manufacturing a copper metal wiring in a semiconductor device)
IT **754-05-2**, Trimethylvinylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(**vapor deposition** precursor; method of manufacturing a copper metal wiring in a semiconductor device)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



L24 ANSWER 41 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:924302 HCAPLUS
DN 136:46930
TI Chemically enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device
IN Pyo, Sung Gyu
PA Hyundai Electronics Industries Co., S. Korea
SO U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001053599	A1	20011220	US 2001-875621	20010606 <--
	US 6376356	B2	20020423		
	KR 2002000049	A	20020104	KR 2000-33983	20000620 <--
	JP 2002026120	A	20020125	JP 2001-71618	20010314 <--
	US 2002076922	A1	20020620	US 2002-79115	20020220 <--
	US 6617238	B2	20030909		
PRAI	KR 2000-33983	A	20000620 <--		
	US 2001-875621	A1	20010606 <--		

AB A method of manufacturing a metal wiring in a semiconductor device is disclosed.
The method comprises forming a photosensitive film so that an underlying metal wiring can be exposed, adhering a chemical enhancer only to the underlying metal wiring, depositing a metal layer by chemical enhanced chemical **vapor deposition** (CECVD) method so that the metal layer is selectively deposited at the portion in which the chemical enhancer is formed, removing the photosensitive film and chemical enhancer, and forming a diffusion barrier layer spacer at the sidewall of the metal layer to form an upper metal wiring. Therefore, the disclosed method can solve poor contact with an underlying metal wiring due to shortage of processional margin in the process of forming an upper metal wiring in a high integration semiconductor device.
IC ICM H01L021-4763
INCL 438618000
CC 76-3 (Electric Phenomena)
ST chem enhanced chem **vapor deposition** metal wiring interconnection
IT Dielectric **films**
Diffusion barrier
Interconnections, electric
Photoresists
Semiconductor device fabrication
(chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)
IT **Vapor deposition** process
(chemical, chemical enhancer; chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)
IT **Vapor deposition** process

(**metalorg.**; chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)

IT **Vapor deposition** process
(phys.; chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)

IT 1333-74-0, Hydrogen, processes 7440-37-1, Argon, processes 7440-59-7, Helium, processes 7727-37-9, Nitrogen, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)

IT 7429-90-5, Aluminum, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium, uses 7440-50-8, Copper, uses 12033-62-4, Tantalum nitride (TaN) 25583-20-4, Titanium nitride (TiN) 37359-53-8, Tungsten nitride 99039-55-1, Tantalum nitride silicide 113151-72-7, Aluminum titanium nitride 121368-53-4, Titanium nitride silicide
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)

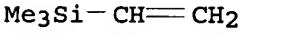
IT **754-05-2**, Vinyltrimethylsilane 1522-22-1, Hexafluoroacetylacetone
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(enhancer; chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)

IT 7440-68-8, Astatine, processes 7553-56-2, Iodine, processes 7726-95-6, Bromine, processes 7782-41-4, Fluorine, processes 7782-50-5, Chlorine, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**vapor deposition** enhancer; chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)

IT 139566-53-3 174202-57-4 244188-25-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(**vapor deposition** precursor; chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)

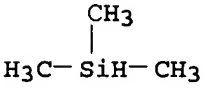
IT **754-05-2**, Vinyltrimethylsilane
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(enhancer; chemical enhanced chemical **vapor deposition** method of manufacturing a metal wiring in a semiconductor device)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)

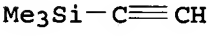


L24 ANSWER 42 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:877302 HCAPLUS
DN 136:280800
TI Atmospheric pressure chemical vapour deposition of polycarbosilane films via UV laser-induced polymerization of ethynyltrimethylsilane
AU Pola, J.; Bastl, Z.; Ouchi, A.; Subrt, J.; Morita, H.
CS Academy of Sciences of the Czech Republic, Institute of Chemical Process

Fundamentals, Laser Chemistry Group, Prague, 16502, Czech Rep.
SO Surface and Coatings Technology (**2002**), 149(2-3), 129-134
CODEN: SCTEEJ; ISSN: 0257-8972
PB Elsevier Science S.A.
DT Journal
LA English
AB ArF laser-induced polymerization of gaseous ethynyltrimethylsilane at atmospheric
pressure of He represents a convenient way of efficient chemical vapor deposition of polycarbosilane films. The films are produced at ambient temperature on metals, quartz and glass, and are adhesive to these substrates, which makes this process promising for fabrication of protective coatings on thermally unstable surfaces.
CC 42-2 (Coatings, Inks, and Related Products)
Section cross-reference(s): 35
IT 74-82-8P, Methane, preparation 74-84-0P, Ethane, preparation 74-85-1P, Ethene, preparation 74-86-2P, Ethyne, preparation 74-99-7P, Propyne **993-07-7P**, Trimethylsilane
RL: BYP (Byproduct); **PREP (Preparation)**
(atmospheric pressure chemical **vapor deposition** of poly(ethynyltrimethylsilane) films via UV laser-induced polymerization)
IT **1066-54-2**, Ethynyltrimethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(polymerization mechanism of; atmospheric pressure chemical **vapor deposition** of poly(ethynyltrimethylsilane) films via UV laser-induced polymerization)
IT **993-07-7P**, Trimethylsilane
RL: BYP (Byproduct); **PREP (Preparation)**
(atmospheric pressure chemical **vapor deposition** of poly(ethynyltrimethylsilane) films via UV laser-induced polymerization)
RN 993-07-7 HCAPLUS
CN Silane, trimethyl- (CA INDEX NAME)



IT **1066-54-2**, Ethynyltrimethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(polymerization mechanism of; atmospheric pressure chemical **vapor deposition** of poly(ethynyltrimethylsilane) films via UV laser-induced polymerization)
RN 1066-54-2 HCAPLUS
CN Silane, ethynyltrimethyl- (CA INDEX NAME)



RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 43 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:798694 HCAPLUS
DN 135:350816
TI CVD process for forming a thin film
IN Kitada, Katsutsugu; Saito, Masayuki
PA Tanaka Kikinzoku Kogyo K.K., Japan

SO U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001036509	A1	20011101	US 2001-817122	20010327 <--
	US 6884463	B2	20050426		
	JP 2001342566	A	20011214	JP 2000-242108	20000810 <--
	CN 1410589	A	20030416	CN 2001-141183	20010928 <--
	US 2005155552	A1	20050721	US 2005-75880	20050310 <--
PRAI	JP 2000-96359	A	20000331 <--		
	JP 2000-242108	A	20000810 <--		
	US 2001-817122	A3	20010327 <--		

AB The present invention is a CVD process for forming a thin film which includes a step of recovering an organometallic compound component from an exhaust gas which was conventionally discarded, and a purifying step of purifying the recovered organometallic compound to thereby eliminate a byproduct formed in a film forming step by CVD. According to this process, the organometallic compound is recycled. As a recovering technique, any of the following is employed: a technique in which the exhaust gas is cooled and is recovered as a recovered content; a technique in which the exhaust gas is brought into contact with a solvent to dissolve the organometallic compound in the solvent; and a technique in which the exhaust gas is brought into contact with an adsorbent to thereby adsorb the organometallic compound A purifying technique is selected depending on the recovering technique or the properties of the recovered content, and any of a technique of distilling the recovered content, a technique of sublimating the recovered content, and a technique of heating the adsorbent to desorb the organometallic compound is employed. These CVD thin film processes can recover and purify the organometallic compound in a higher yield by adding a step of eliminating oxygen from the exhaust gas prior to the recovering step.

IC ICM C23C016-00
INCL 427255280; X11-871.5; X11-872.4
CC 75-1 (Crystallography and Liquid Crystals)

IT Metals, processes
Oxides (inorganic), processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(CVD process for forming thin **film** of metal or metal oxide including step of recovering organometallic compound component)

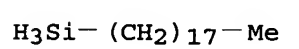
IT Organometallic compounds
RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PREP (Preparation); PROC (Process)
(CVD process for forming thin **film** of metal or metal oxide including step of recovering organometallic compound component from exhaust gas)

IT **Films**
(growth; CVD process for forming thin **film** of metal or metal oxide including step of recovering organometallic compound component from exhaust gas)

IT **Vapor deposition** apparatus
Vapor deposition process
(**metalorg.**; CVD process for forming thin **film** of metal or metal oxide including step of recovering organometallic compound component from exhaust gas)

IT 1287-13-4P, Bis(cyclopentadienyl)ruthenium 371193-63-4P, n-Propylcyclopentadienyl(cyclopentadienyl)ruthenium
RL: PEP (Physical, engineering or chemical process); PUR (Purification or

recovery); PREP (Preparation); PROC (Process)
(CVD process for forming thin **film** of metal or metal oxide including step of recovering organometallic compound component)
IT 7439-88-5, Iridium, processes 7440-06-4, Platinum, processes 7440-18-8, Ruthenium, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(CVD process for forming thin **film** of metal or metal oxide including step of recovering organometallic compound component from exhaust gas)
IT 32992-96-4P, Bis(ethylcyclopentadienyl)ruthenium 94442-22-5P, (Methylcyclopentadienyl)(trimethyl)platinum 185394-13-2P
RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PREP (Preparation); PROC (Process)
(CVD process for forming thin **film** of metal or metal oxide including step of recovering organometallic compound component from exhaust gas)
IT 1344-28-1, Alumina, analysis 7782-42-5, Graphite, analysis 9016-00-6, Dimethylpolysiloxane **18623-11-5**, Octadecylsilane
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(filler for LC and GC used to purify organometallic compound component recovered from exhaust gas during CVD)
IT **18623-11-5**, Octadecylsilane
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(filler for LC and GC used to purify organometallic compound component recovered from exhaust gas during CVD)
RN 18623-11-5 HCAPLUS
CN Silane, octadecyl- (CA INDEX NAME)

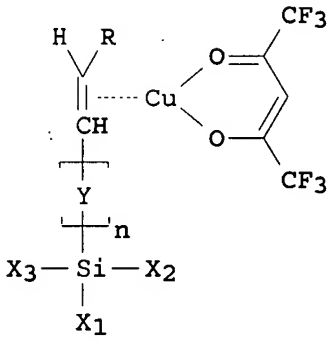


RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 44 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:792357 HCAPLUS
DN 135:331547
TI Cuprous alkylalkoxysilane β-diketone complex, liquid mixture containing the compound, and copper thin-film prepared using the solution
IN Itsuki, Atsushi; Ogi, Katsumi
PA Mitsubishi Materials Corp., Japan
SO U.S., 15 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6310228	B1	20011030	US 2000-736305	20001215 <--
	JP 2002128787	A	20020509	JP 2000-302405	20001002 <--
PRAI	JP 1999-355988	A	19991215 <--		
	JP 2000-118258	A	20000419 <--		
	JP 2000-203310	A	20000705 <--		
	JP 2000-248453	A	20000818 <--		
	JP 2000-302405	A	20001002 <--		

OS CASREACT 135:331547; MARPAT 135:331547
GI



I

AB Compds. I, in which copper is coordinated with a β-diketone compound and an unsatd. hydrocarbon compound having a silyloxy group (wherein A, B = C or CH; A-B = double or triple bond; R1 = OH or CF3; R = H, or an alkyl moiety; Y = alkyl, such as a methylene group, or alkoxy moiety; n = 0, 1; X1, X2, and X3 = H, (C1-C5)alkyl, or an (C1-C4)alkoxy, and X1, X2, and X3 may be the same or different from each other), were prepared Thus, copper(I) oxide was reacted with vinyloxytrimethylsilane and 1,1,1,5,5,5-hexafluoro-2,4-pentanedione to give copper(I) oxytrimethylsilylethene 1,1,1,5,5,5-hexafluoro-2,4-pentanedionate. Compound I is barely decomposed in a stock solution before use, has a prolonged storage life, exhibits a high film deposition rate, can be effectively decomposed on a substrate, is highly volatile, and exhibits high adhesiveness to an underlayer.

IC ICM C07F007-24

INCL 556009000

CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 56, 75, 76

ST organocopper compd prepn liq mixt thin film; cuprous alkylalkoxysilane hexafluoroacetylacetonate soln metalorg CVD; copper thin film CVD; metallo org chem **vapor deposition** copper

IT **Vapor deposition** process
(**metalorg.**; preparation of cuprous alkylalkoxysilane β-diketone compds. for forming liquid mixts., and copper thin **films** by MOCVD)

IT Electric conductors
(preparation of cuprous alkylalkoxysilane β-diketone compds. for forming liquid mixts., and copper thin **films** by MOCVD)

IT 503-17-3, 2-Butyne **754-05-2**, Trimethylvinylsilane **762-72-1**, Allyltrimethylsilane 928-49-4, 3-Hexyne 2768-02-7, Trimethoxyvinylsilane
RL: MOA (Modifier or additive use); USES (Uses)
(preparation of cuprous alkylalkoxysilane β-diketone compds. for forming liquid mixts., and copper thin **films** by MOCVD)

IT 2551-83-9, Allyltrimethoxysilane 6213-94-1, Vinyloxytrimethylsilane 18146-00-4, Allyloxytrimethylsilane
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(preparation of cuprous alkylalkoxysilane β-diketone compds. for forming liquid mixts., and copper thin **films** by MOCVD)

IT 141-82-2, Propanedioic acid, reactions 1317-39-1, Copper(I) oxide, reactions 1522-22-1, 1,1,1,5,5,5-Hexafluoro-2,4-pentanedione 57813-71-5 402519-08-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of cuprous alkylalkoxysilane β-diketone compds. for forming liquid mixts., and copper thin **films** by MOCVD)

IT 139566-53-3P **173341-67-8P** 174202-57-4P 370591-31-4P
370591-32-5P 370591-33-6P 370591-34-7P 370591-35-8P 370591-36-9P
370591-37-0P 370591-38-1P 370591-39-2P 370591-40-5P 370591-41-6P
370591-42-7P 370591-43-8P 370591-44-9P 370591-45-0P 370591-46-1P
370591-47-2P 370591-48-3P 370591-49-4P 370591-50-7P 370591-51-8P
370591-52-9P 370591-53-0P 370591-54-1P
370591-55-2P 370591-56-3P 370591-57-4P
370591-58-5P 370591-59-6P 370591-60-9P 370591-61-0P
370591-62-1P **370591-63-2P** 370591-64-3P 370591-65-4P
370591-66-5P 370591-67-6P 370591-68-7P 370591-69-8P 370591-70-1P
370591-71-2P 370591-72-3P 370591-73-4P 370591-74-5P 370591-75-6P
370591-76-7P 370591-77-8P 370591-78-9P 370591-79-0P 370591-80-3P
370591-81-4P 370591-82-5P 370591-83-6P 370591-84-7P 370591-85-8P
370591-86-9P 370591-87-0P 370591-88-1P 370591-89-2P 370591-90-5P
370591-91-6P 370591-92-7P 370591-93-8P
370591-94-9P 370591-95-0P 370591-96-1P
370591-97-2P 370591-98-3P 370591-99-4P
370592-00-0P 370592-01-1P 370592-02-2P 370592-03-3P 370592-04-4P
370592-05-5P 370592-06-6P 370592-07-7P 370592-08-8P 370592-09-9P
370592-10-2P 370592-11-3P 370592-12-4P 370592-13-5P 370592-14-6P
370592-15-7P 370592-16-8P 370592-17-9P 370592-18-0P 370592-19-1P
370592-20-4P **370592-21-5P 370592-22-6P**
370592-23-7P 370592-24-8P 370592-25-9P
370592-26-0P 370592-27-1P 370592-28-2P
370592-29-3P 370592-30-6P 370592-31-7P **370592-32-8P**
370592-33-9P 370592-34-0P 370592-35-1P 370592-36-2P 370592-37-3P
370592-38-4P 370592-39-5P 370592-40-8P 370592-41-9P 370592-42-0P
370592-43-1P 370592-44-2P 370592-45-3P 370592-46-4P 370592-47-5P
370592-48-6P 370592-49-7P 370592-50-0P 370592-51-1P 370592-52-2P
370592-53-3P 370592-54-4P 370592-55-5P 370592-56-6P 370592-57-7P
370592-58-8P 370592-59-9P **370592-60-2P 370592-61-3P**
370592-62-4P **370592-63-5P 370592-64-6P**
370592-65-7P 370592-66-8P 370592-67-9P
370592-68-0P 370592-69-1P 370592-70-4P 370592-71-5P
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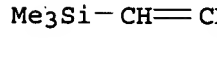
370592-77-1P 370592-78-2P 370592-79-3P 370592-80-6P 370592-81-7P
370592-82-8P 370592-83-9P 370592-84-0P 370592-85-1P 370592-86-2P
370592-87-3P 370592-88-4P 370592-89-5P 370592-90-8P 370592-91-9P
370592-92-0P
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; RACT (Reactant or reagent); USES (Uses)
(preparation of cuprous alkylalkoxysilane β-diketone compds. for forming liquid mixts., and copper thin **films** by MOCVD)

IT **754-05-2**, Trimethylvinylsilane **762-72-1**, Allyltrimethylsilane
RL: MOA (Modifier or additive use); USES (Uses)
(preparation of cuprous alkylalkoxysilane β-diketone compds. for forming liquid mixts., and copper thin **films** by MOCVD)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)

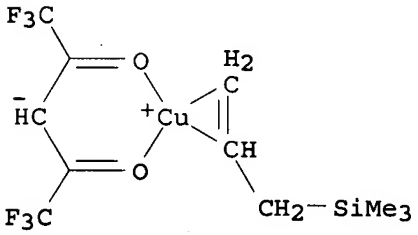


RN 762-72-1 HCAPLUS
CN Silane, trimethyl-2-propen-1-yl- (CA INDEX NAME)

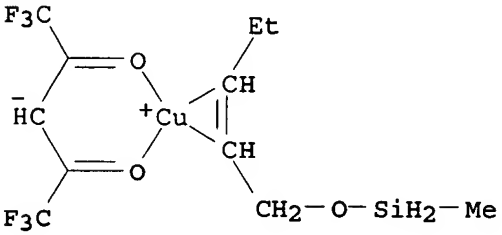
$Me_3Si-CH_2-CH=CH_2$

IT **173341-67-8P 370591-52-9P 370591-53-0P**
370591-54-1P 370591-55-2P 370591-56-3P
370591-57-4P 370591-58-5P 370591-59-6P
370591-63-2P 370591-91-6P 370591-92-7P
370591-94-9P 370591-95-0P 370591-96-1P
370591-97-2P 370591-98-3P 370591-99-4P
370592-21-5P 370592-22-6P 370592-23-7P
370592-24-8P 370592-25-9P 370592-26-0P
370592-27-1P 370592-28-2P 370592-32-8P
370592-60-2P 370592-61-3P 370592-63-5P
370592-64-6P 370592-65-7P 370592-66-8P
370592-67-9P 370592-68-0P
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; RACT (Reactant or reagent); USES (Uses)
(preparation of cuprous alkylalkoxysilane β-diketone compds. for forming liquid mixts., and copper thin **films** by MOCVD)

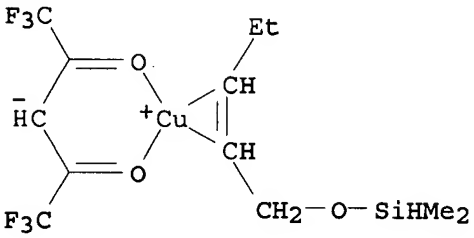
RN 173341-67-8 HCAPLUS
CN Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[(2,3-η)-trimethyl-2-propenylsilane]- (9CI) (CA INDEX NAME)



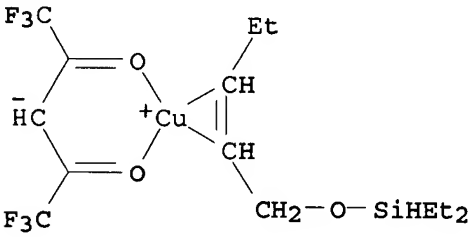
RN 370591-52-9 HCAPLUS
CN Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[methyl[[(2,3-η)-2-pentenyl]oxy]silane]- (9CI) (CA INDEX NAME)



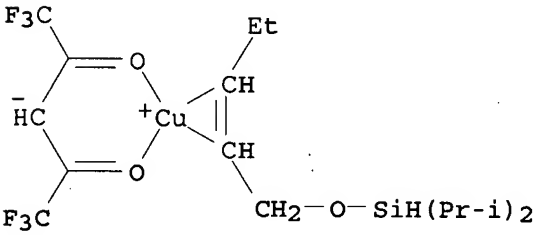
RN 370591-53-0 HCAPLUS
CN Copper, [dimethyl[[(2,3-η)-2-pentenyl]oxy]silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



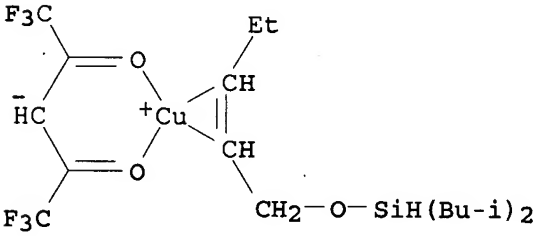
RN 370591-54-1 HCAPLUS
CN Copper, [diethyl[[(2,3-η)-2-pentenyl]oxy]silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



RN 370591-55-2 HCAPLUS
CN Copper, [bis(1-methylethyl)[[(2,3-η)-2-pentenyl]oxy]silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)

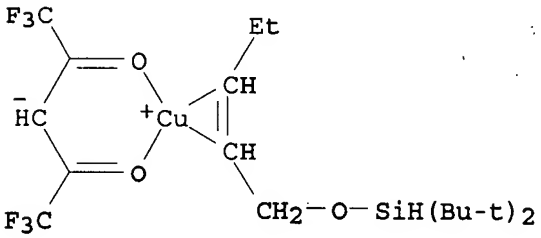


RN 370591-56-3 HCAPLUS
CN Copper, [bis(2-methylpropyl)[[(2,3-η)-2-pentenyl]oxy]silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)

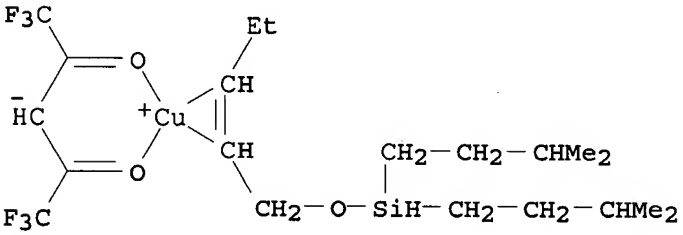


RN 370591-57-4 HCAPLUS
CN Copper, [bis(1,1-dimethylethyl)[[(2,3-η)-2-

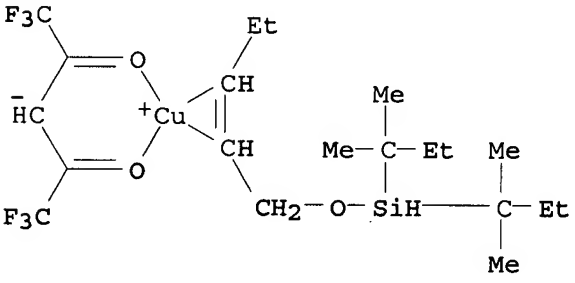
pentenyl]oxy]silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')-. (9CI) (CA INDEX NAME)



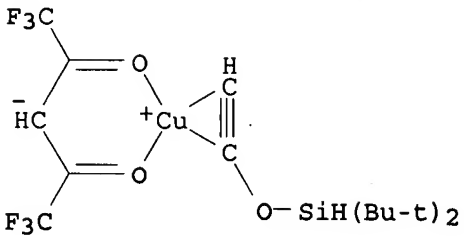
RN 370591-58-5 HCAPLUS
CN Copper, [bis(3-methylbutyl)[[(2,3-η)-2-pentenyl]oxy]silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



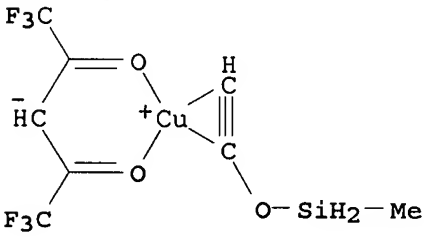
RN 370591-59-6 HCAPLUS
CN Copper, [bis(1,1-dimethylpropyl)[[(2,3-η)-2-pentenyl]oxy]silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



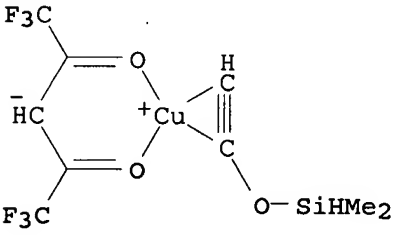
RN 370591-63-2 HCAPLUS
CN Copper, [bis(1,1-dimethylethyl)(η2-ethynyloxy)silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



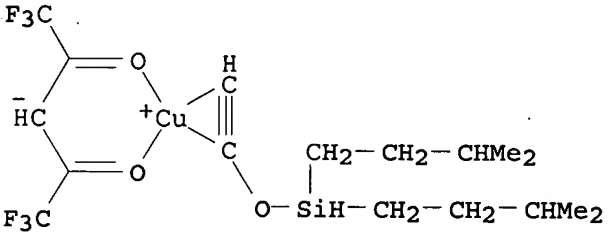
RN 370591-91-6 HCAPLUS
CN Copper, [(η2-ethynyloxy)methylsilane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



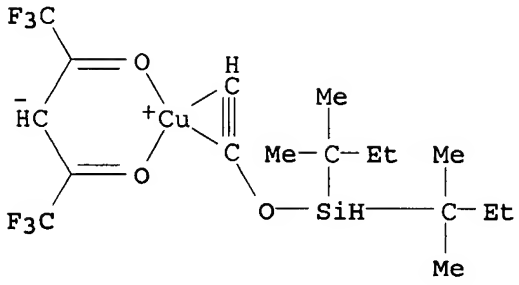
RN 370591-92-7 HCAPLUS
CN Copper, [(η2-ethynyloxy)dimethylsilane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



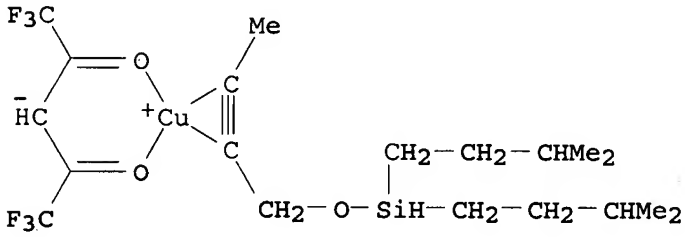
RN 370591-94-9 HCAPLUS
CN Copper, [(η2-ethynyloxy)bis(3-methylbutyl)silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



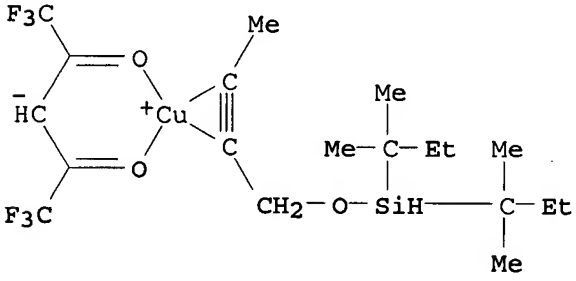
RN 370591-95-0 HCAPLUS
CN Copper, [bis(1,1-dimethylpropyl)(η2-ethynyloxy)silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



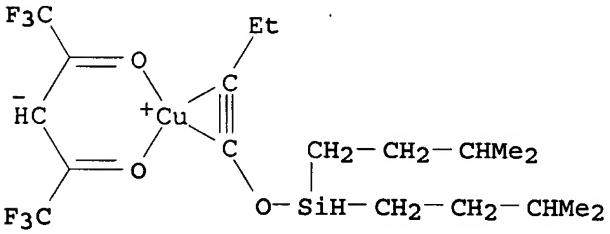
RN 370591-96-1 HCAPLUS
CN Copper, [[[(2,3-η)-2-butynyl]oxy]bis(3-methylbutyl)silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



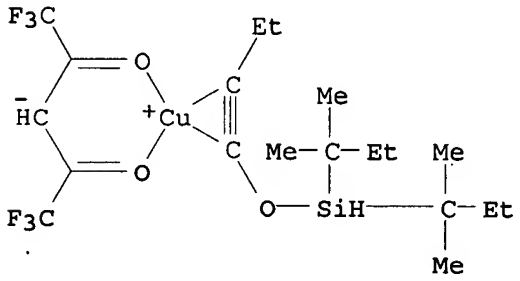
RN 370591-97-2 HCAPLUS
CN Copper, [[[(2,3-η)-2-butynyl]oxy]bis(1,1-dimethylpropyl)silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



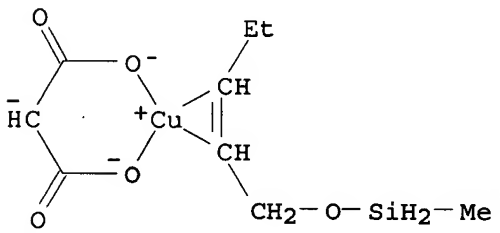
RN 370591-98-3 HCAPLUS
CN Copper, [[[(1,2-η)-1-butynyl]oxy]bis(3-methylbutyl)silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



RN 370591-99-4 HCAPLUS
CN Copper, [[[(1,2-η)-1-butynyl]oxy]bis(1,1-dimethylpropyl)silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)

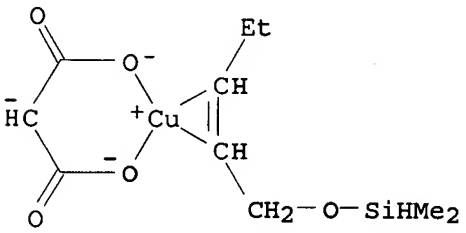


RN 370592-21-5 HCAPLUS
CN Cuprate(2-), [methyl[[(2,3-η)-2-pentenyl]oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



●2 H^+

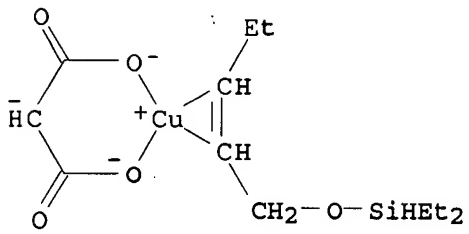
RN 370592-22-6 HCAPLUS
CN Cuprate(2-), [dimethyl[[(2,3-η)-2-pentenyl]oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



●2 H^+

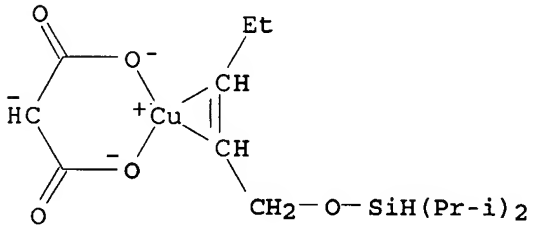
RN 370592-23-7 HCAPLUS

CN Cuprate(2-), [diethyl[[(2,3-η)-2-pentenyl]oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



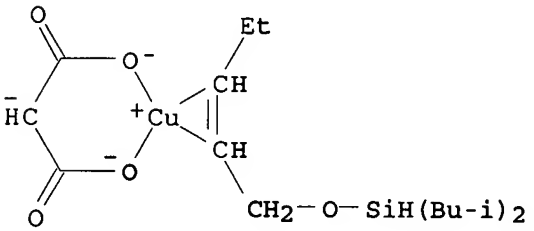
●2 H+

RN 370592-24-8 HCAPLUS
CN Cuprate(2-), [bis(1-methylethyl)[[(2,3-η)-2-pentenyl]oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



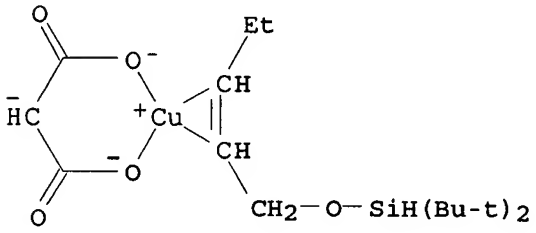
●2 H+

RN 370592-25-9 HCAPLUS
CN Cuprate(2-), [bis(2-methylpropyl)[[(2,3-η)-2-pentenyl]oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



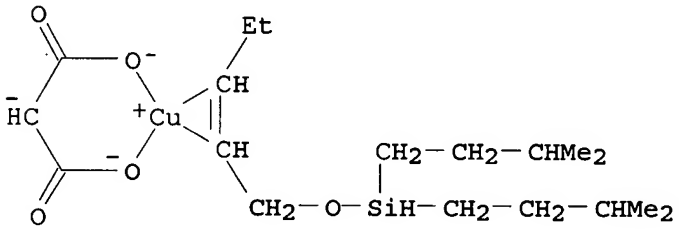
●2 H+

RN 370592-26-0 HCAPLUS
CN Cuprate(2-), [bis(1,1-dimethylethyl)[[(2,3-η)-2-pentenyl]oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



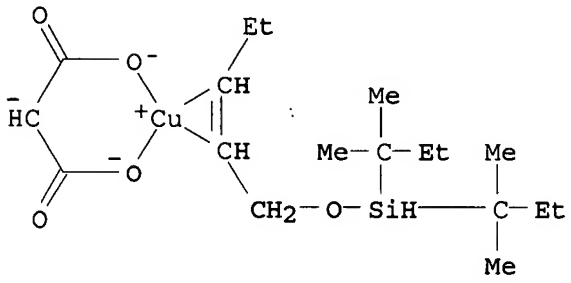
●2 H+

RN 370592-27-1 HCAPLUS
CN Cuprate(2-), [bis(3-methylbutyl)[[(2,3-η)-2-pentenyl]oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



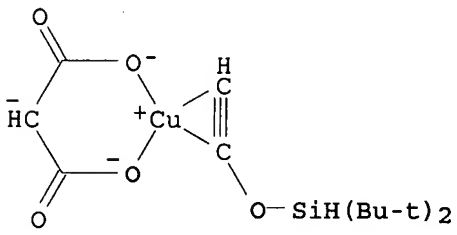
●2 H+

RN 370592-28-2 HCAPLUS
CN Cuprate(2-), [bis(1,1-dimethylpropyl)[[(2,3-η)-2-pentenyl]oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



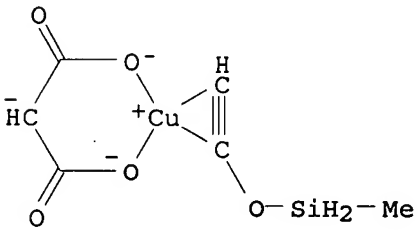
●2 H^+

RN 370592-32-8 HCAPLUS
CN Cuprate(2-), [bis(1,1-dimethylethyl)[(η2-ethynyl)oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



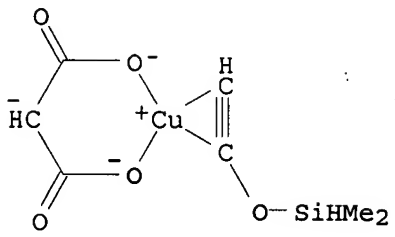
●2 H^+

RN 370592-60-2 HCAPLUS
CN Cuprate(2-), [[(η2-ethynyl)oxy]methylsilane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



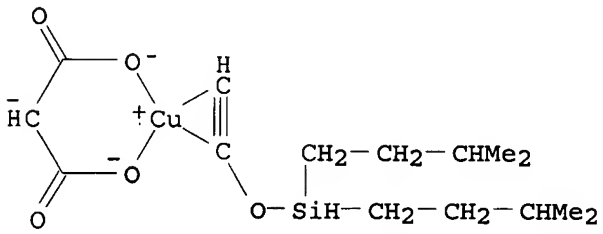
●2 H^+

RN 370592-61-3 HCAPLUS
CN Cuprate(2-), [[(η2-ethynyl)oxy]dimethylsilane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



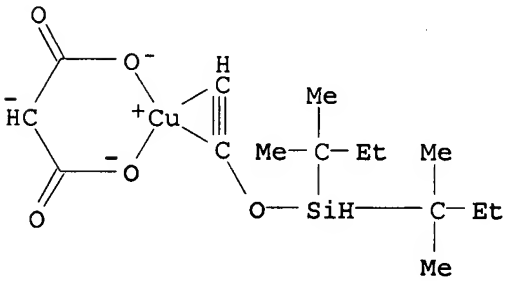
●2 H^+

RN 370592-63-5 HCAPLUS
CN Cuprate(2-), [[(η2-ethynyl)oxy]bis(3-methylbutyl)silane][propanedioato (3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



●2 H^+

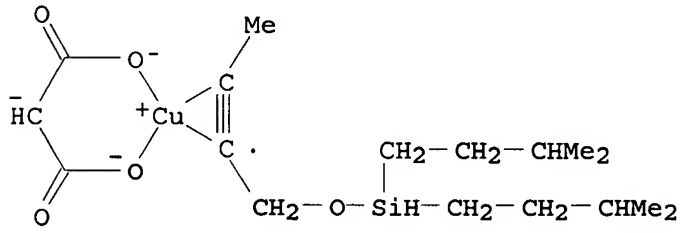
RN 370592-64-6 HCAPLUS
CN Cuprate(2-), [bis(1,1-dimethylpropyl)[(η2-ethynyl)oxy]silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



●2 H^+

RN 370592-65-7 HCAPLUS

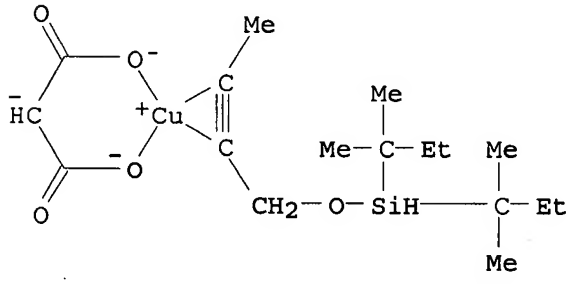
CN Cuprate(2-), [[[(2,3-η)-2-butynyl]oxy]bis(3-methylbutyl)silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



●2 H+

RN 370592-66-8 HCAPLUS

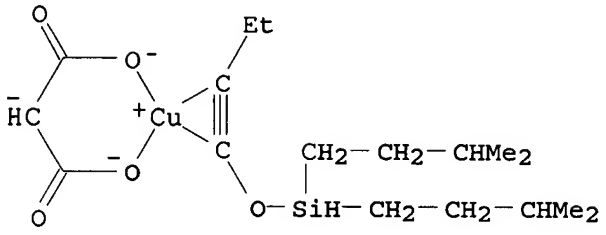
CN Cuprate(2-), [[[(2,3-η)-2-butynyl]oxy]bis(1,1-dimethylpropyl)silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



●2 H+

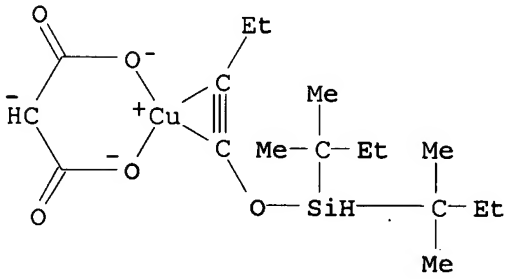
RN 370592-67-9 HCAPLUS

CN Cuprate(2-), [[[(1,2-η)-1-butynyl]oxy]bis(3-methylbutyl)silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



●2 H+

RN 370592-68-0 HCAPLUS
CN Cuprate(2-), [[[(1,2-η)-1-butynyl]oxy]bis(1,1-dimethylpropyl)silane][propanedioato(3-)-κO1,κO3]-, dihydrogen (9CI) (CA INDEX NAME)



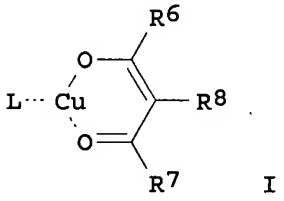
●2 H+

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 45 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:693259 HCAPLUS
DN 135:257347
TI β-Diketonatocopper(I) complex containing allene compound as ligand and process for producing the same
IN Watanabe, Hisayuki; Musashi, Hideki; Kawamura, Yasuo
PA Nissan Chemical Industries, Ltd., Japan
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001068580	A1	20010920	WO 2001-JP1956	20010313 <--
	W: US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	JP 2001328953	A	20011127	JP 2001-59695	20010305 <--

EP 1264817 A1 20021211 EP 2001-912308 20010313 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR
US 2003109734 A1 20030612 US 2002-203274 20020808 <--
US 6642401 B2 20031104
PRAI JP 2000-69814 A 20000314 <--
WO 2001-JP1956 W 20010313 <--
OS CASREACT 135:257347; MARPAT 135:257347
GI



I

AB A β-diketonatocopper(I) complex represented by the formula [I; wherein R6 and R7 may be the same or different and each represents linear or branched C1-4 alkyl, C1-4 alkoxy, or linear or branched C1-4 fluoroalkyl; R8 represents hydrogen or fluorine; L = an allene compound which serves as a ligand (L)], which contains an allene compound [II; R1 - R4 = H, C1-4 alkyl, (R5)3Si; or R1 and R2 together with the carbon atom linked to R1 and R2 form a 3- to 6-membered ring; or R2 and R3 together with an allene group linked to R2 and R3 form a 8- to 10-membered ring; wherein R5 = linear or branched alkyl C1-4 alkyl] as a ligand (L), are prepared This copper complex is useful in forming a thin copper film by metal-organic chemical **vapor deposition** (MOCVD) (no data). Thus, to a suspension of 3.0 g CuO in 30 mL CH2Cl2 was added 1.77 g 1-methyl-1-(trimethylsilyl)allene under vigorous stirring, followed by adding 3.2 g 1,1,1,5,5,5-hexafluoro-2,4-pentanedione, and the reaction solution was stirred for 12 h to give, after purification by chromatog., 4.2 g [1-methyl-1-(trimethylsilyl)allene](1,1,1,5,5,5-hexafluoro-2,4-pentanedione)copper(I) which had b.p. 140-164° and exhibited very high volatility according to thermogravimetric curve.

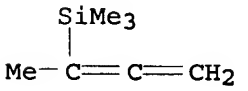
IC ICM C07C049-92
ICS C07C045-77; C07C011-14; C07C013-02; C07F007-08; C07F001-08; C23C016-18
CC 29-9 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 76
ST diketonatocopper complex contg allene prepn copper film MOCVD; copper film metal org chem **vapor deposition**
IT **Vapor deposition** process
(**metalorg.**; preparation of β-diketonatocopper(I) complexes containing allene compds. as ligands for copper **film** MOCVD and process for producing them)
IT 7440-50-8P, Copper, preparation
RL: PNU (Preparation, unclassified); PREP (Preparation)
(**film**; preparation of β-diketonatocopper(I) complexes containing allene compds. as ligands for copper **film** MOCVD and process for producing them)
IT 598-25-4DP, 1,1-Dimethylallene, complex with copper and 1,1,1,5,5,5-hexafluoro-2,4-pentanedione 2384-90-9DP, 1,2-Heptadiene, complex with copper and 1,1,1,5,5,5-hexafluoro-2,4-pentanedione 7440-50-8DP, Copper, complex with allenes and 1,1,1,5,5,5-hexafluoro-2,4-pentanedione, preparation 36382-08-8DP, complex with copper and

1,1,1,5,5,5-hexafluoro-2,4-pentanedione **74542-82-8DP**, complex with copper and 1,1,1,5,5,5-hexafluoro-2,4-pentanedione **176545-76-9DP**, complex with copper and 1,1,1,5,5,5-hexafluoro-2,4-pentanedione 362056-72-2P 362056-73-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(preparation of β-diketonatocopper(I) complexes containing allene compds. as ligands for copper **film** MOCVD and process for producing them)

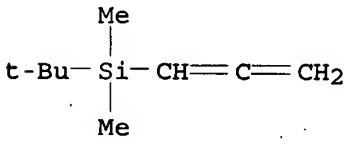
IT 598-25-4, 1,1-Dimethylallene 1000-87-9, 1,1,3,3-Tetramethylallene 1123-11-1, 1,2-Cyclononadiene 1317-39-1, Copper(I) oxide, reactions 1522-22-1, 1,1,1,5,5,5-Hexafluoro-2,4-pentanedione 2384-90-9, 1,2-Heptadiene 36382-08-8, 1-tert-Butyl-3-methylallene **74542-82-8 176545-76-9**
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of β-diketonatocopper(I) complexes containing allene compds. as ligands for copper **film** MOCVD and process for producing them)

IT **74542-82-8DP**, complex with copper and 1,1,1,5,5,5-hexafluoro-2,4-pentanedione **176545-76-9DP**, complex with copper and 1,1,1,5,5,5-hexafluoro-2,4-pentanedione
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(preparation of β-diketonatocopper(I) complexes containing allene compds. as ligands for copper **film** MOCVD and process for producing them)

RN 74542-82-8 HCAPLUS
CN Silane, trimethyl(1-methyl-1,2-propadienyl)- (9CI) (CA INDEX NAME)

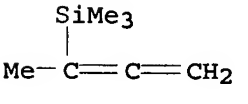


RN 176545-76-9 HCAPLUS
CN Silane, (1,1-dimethylethyl)dimethyl-1,2-propadienyl- (9CI) (CA INDEX NAME)

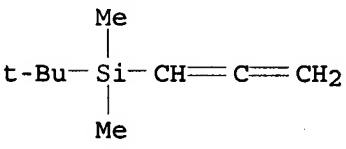


IT **74542-82-8 176545-76-9**
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of β-diketonatocopper(I) complexes containing allene compds. as ligands for copper **film** MOCVD and process for producing them)

RN 74542-82-8 HCAPLUS
CN Silane, trimethyl(1-methyl-1,2-propadienyl)- (9CI) (CA INDEX NAME)



RN 176545-76-9 HCAPLUS
CN Silane, (1,1-dimethylethyl)dimethyl-1,2-propadienyl- (9CI) (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 46 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:676686 HCAPLUS
DN 135:234832
TI Composition and process for production of copper circuitry in microelectronic device structures
IN Baum, Thomas H.; Xu, Chongying
PA Advanced Technology Materials, Inc., USA
SO PCT Int. Appl., 71 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001066347	A1	20010913	WO 2001-US7232	20010307 <--
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6589329	B1	20030708	US 2000-522102	20000309 <--
PRAI	US 2000-522102	A	20000309 <--		

AB Compns. useful for chemical vapor delivery (CVD) formation of Cu layers in semiconductor integrated circuits, e.g., interconnect metalization in semiconductor device structures, as an adhesive seed layer for plating, for the deposition of a thin-film recording head or for circuitization of packaging components. The Cu precursor formulation may include ≥1 Cu precursors, e.g., a precursor of the formula hfac(Cu)L where L is a low-cost ligand such as an alkene and/or alkyne. The formulation may include in addition to the Cu precursor(s) ≥1 low-cost ligand species such as alkenes, alkynes, dienes and combinations thereof, to increase thermal stability of the formulation and provide enhanced vaporization properties for CVD.
IC ICM B32B015-20
ICS B05D005-12; C23C016-18; C23C014-04; C07F001-08
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 29
IT **Vapor deposition** process
(chemical; copper **metalorg.** precursors preparation and application in production of copper circuitry in microelectronic device structures)
IT **Vapor deposition** process

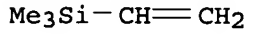
(**metalorg.**; copper **metalorg.** precursors preparation and application in production of copper circuitry in microelectronic device structures)

IT 37305-87-6, (Barium, Strontium) titanate
RL: DEV (Device component use); USES (Uses)
(dielec. **film**; copper metalorg. precursors preparation and application in production of copper circuitry in microelectronic device structures)

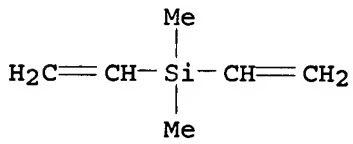
IT 78-79-5, Isoprene, reactions 110-83-8, Cyclohexene, reactions 138-86-3, Dipentene 503-17-3, 2-Butyne 592-41-6, 1-Hexene, reactions 693-02-7, 1-Hexyne **754-05-2**, Vinyltrimethylsilane 764-13-6, 2,5-Dimethyl-2,4-hexadiene 3048-64-4, 5-Vinyl-2-norbornene **10519-87-6**, Silane, diethenyldimethyl- 23056-94-2, 2-Methyl-1-hexen-3-yne 29797-09-9, Cyclohexadiene 62882-98-8, Dimethylcyclooctadiene
RL: RCT (Reactant); RACT (Reactant or reagent)
(ligands; copper metalorg. precursors preparation and application in production of copper circuitry in microelectronic device structures)

IT **754-05-2**, Vinyltrimethylsilane **10519-87-6**, Silane, diethenyldimethyl-
RL: RCT (Reactant); RACT (Reactant or reagent)
(ligands; copper metalorg. precursors preparation and application in production of copper circuitry in microelectronic device structures)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



RN 10519-87-6 HCAPLUS
CN Silane, diethenyldimethyl- (CA INDEX NAME)

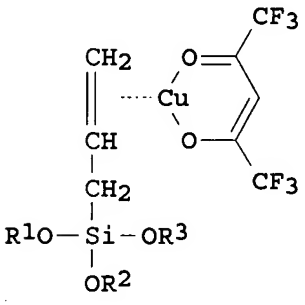


RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 47 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:288852 HCAPLUS
DN 134:334524
TI Cuprous allylalkoxysilane hexafluoroacetylacetoate for metalorganic chemical **vapor deposition**, solution containing the compound for forming copper thin film, and the copper thin film
IN Itsuki, Atsushi; Ogi, Katsumi
PA Mitsubishi Materials Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI	JP 2001114789	A	20010424	JP 1999-288066	19991008 <--
PRAI	JP 1999-288066		19991008 <--		
OS	MARPAT 134:334524				
GI					



I

AB The organic Cu compound is that represented as I (R1-R3 = Me, Et, Pr, Bu), which is contained in the solution for metalorg. CVD for forming a Cu thin film. The solution shows good storage stability and CVD can be performed rapidly by the solution Alternatively, the solution contains I and Cu+1 allyltrimethylsilane hexafluoroacetylacetonate, Cu+1 trimethylvinylsilane hexafluoroacetylacetonate, or Cu+1 trimethoxyvinylsilane hexafluoroacetylacetonate optionally associated with allyltrimethylsilane, trimethylvinylsilane, trimethoxyvinylsilane, and/or allyltrimethoxysilane. The Cu thin film formed by metalorg. CVD using the solution is also claimed, which shows good adhesion to substrate, preferably, to a semiconductor substrate.

IC ICM C07F007-18
ICS C23C016-18; H01L021-285; C07F001-08; C07F007-08; C07F019-00

CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 29, 56, 76

IT Semiconductor device fabrication
(cuprous allylalkoxysilane hexafluoroacetylacetoate for metalorg. CVD for forming copper thin **film** for semiconductor device)

IT **Vapor deposition** process
(**metalorg.**; cuprous allylalkoxysilane hexafluoroacetylacetoate for **metalorg.** CVD for forming copper thin **film** for semiconductor device)

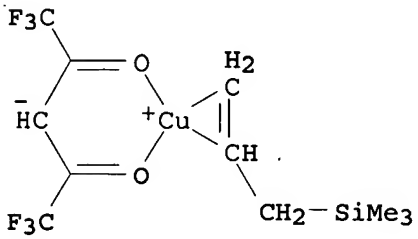
IT 7440-50-8, Copper, processes 139566-53-3 **173341-67-8** 174202-57-4 335371-19-2 335371-20-5
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(cuprous allylalkoxysilane hexafluoroacetylacetoate for metalorg. CVD for forming copper thin **film** for semiconductor device)

IT **754-05-2**, Trimethylvinylsilane **762-72-1**, Allyltrimethylsilane 2551-83-9, Allyltrimethoxysilane 2768-02-7, Trimethoxyvinylsilane
RL: MOA (Modifier or additive use); USES (Uses)
(solution of cuprous allylalkoxysilane hexafluoroacetylacetoate for metalorg. CVD containing)

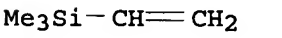
IT **173341-67-8**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(cuprous allylalkoxysilane hexafluoroacetylacetoate for metalorg. CVD for forming copper thin **film** for semiconductor device)

RN 173341-67-8 HCAPLUS

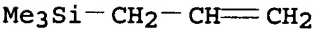
CN Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[(2,3-η)-trimethyl-2-propenylsilane]- (9CI) (CA INDEX NAME)



IT **754-05-2**, Trimethylvinylsilane **762-72-1**, Allyltrimethylsilane
RL: MOA (Modifier or additive use); USES (Uses)
(solution of cuprous allylalkoxysilane hexafluoroacetylacetoate for metalorg. CVD containing)
RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



RN 762-72-1 HCAPLUS
CN Silane, trimethyl-2-propen-1-yl- (CA INDEX NAME)

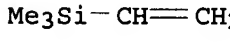


L24 ANSWER 48 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:195015 HCAPLUS
DN 134:229945
TI Apparatus and method for manufacture of copper film by metalorganic chemical **vapor deposition** (MOCVD)
IN Kobayashi, Akiko; Akiyama, Susumu; Okada, Osamu
PA Anelva Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001073147	A	20010321	JP 1999-250160	19990903 <--
PRAI JP 1999-250160		19990903 <--		

AB The method uses (A) reactant gases containing free radical-having metalorg. compds. and solvent gases having the same free radical as the metalorg. compds. and (B) inert gases containing the solvent gases flowing along with the back of substrates and the upper wall of a reactant chamber. The apparatus for the method is also claimed. The inert gases flowing during the CVD process prevents Cu deposition except on the main surface of the substrate.
IC ICM C23C016-455
ICS H01L021-285

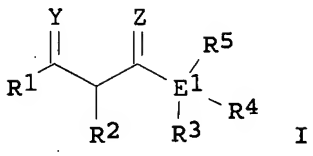
CC 75-1 (Crystallography and Liquid Crystals)
ST metalorg chem **vapor deposition** copper; MOCVD inert gas free radical flowing
IT **Vapor deposition** apparatus
(apparatus and method for manufacture of copper **film** by MOCVD)
IT **Vapor deposition** process
(**metalorg.**; apparatus and method for manufacture of copper **film** by MOCVD)
IT 139566-53-3, Copper(I) hexafluoroacetylacetonate trimethylvinylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(apparatus and method for manufacture of copper **film** by MOCVD)
IT 7440-50-8P, Copper, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(apparatus and method for manufacture of copper **film** by MOCVD)
IT **754-05-2**, Trimethylvinylsilane
RL: MOA (Modifier or additive use); USES (Uses)
(inert gas containing; apparatus and method for manufacture of copper **film** by MOCVD)
IT **754-05-2**, Trimethylvinylsilane
RL: MOA (Modifier or additive use); USES (Uses)
(inert gas containing; apparatus and method for manufacture of copper **film** by MOCVD)
RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



L24 ANSWER 49 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:824258 HCAPLUS
DN 133:358544
TI Preparation of Group IVA element-substituted β-diketones and analogs and preparation of their metal complexes as MOCVD precursors
IN Welch, John T.; Toscano, Paul J.; Claessen, Rolf; Kornilov, Andrei; Banger, Kulbinder K.
PA Research Foundation of State University of New York, USA
SO PCT Int. Appl., 44 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000069863	A1	20001123	WO 2000-US13597	20000518 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6184403	B1	20010206	US 1999-314311	19990519 <--
PRAI US 1999-314311	A	19990519 <--		

OS CASREACT 133:358544; MARPAT 133:358544
GI



I

AB Claimed are β-diketones and analogs I (R1 = C2 or higher alkyl, substituted alkyl, haloalkyl, cycloalkyl, E2(R6)(R7)(R8), etc.; R2 = H, halo, NO2, haloalkyl; E1 and E2 are independently Si, Ge, Sn, Pb; R3-R8 are independently alkyl, substituted alkyl, cycloalkyl, aryl, etc.; Y and Z are independently O, S, NR9 where R9 = alkyl, substituted alkyl, cycloalkyl, etc.) and their complexes MLn·pD where M = metals from Groups IA, IIA, transition metal, lanthanides, and IVA metals, D is a neutral coordinating ligand, n = valence of M, p = 0 or integer 1-6, and L = I. Also claimed is a process for the preparation of I comprising (a) reacting an alkyllithium compound, a 1,3-dithiane which is 2-substituted by ER3R4R5, and a copper salt to form a lithium 1,3-dithianylcuprate, (b) reacting the latter with R1C(Y)CHR2Br, and (c) deprotecting by treatment with a mercury reagent. A claimed process for the preparation of MLn·pD comprises (a) reacting E(R3)(R4)(R5)C(O)CH2R2 with a lithium dialkylamide to form a lithium enolate, (b) reacting the latter with R1C(Y)Q (Q = leaving group), (c) forming an anion, and (d) reacting the anion with a metal salt. The metal complexes of I are useful as MOCVD precursors, as substitution of the β-diketonate-type ligands with Si, Ge, Sn or Pb induces high volatility in the metal complexes, and the complexes are stable at the sublimation point. Thus, lithiation of 2-trimethylsilyl-1,3-dithiane with BuLi in THF, followed by reaction with CuBr.Me2S afforded a 2-lithio-1,3-dithianylcuprate in situ which was subsequently reacted with bromopinacolone and vacuum distilled to give pure dithiane-protected silyl β-diketonate. This was deprotected with HgO and HgCl2 to give Me3CC(O)CH2C(O)SiMe3. Deprotonation of Me3CC(O)CH2C(O)SiMe3 with KH in THF or aqueous NaOH gave Cu(Me3CC(O)CH2C(O)SiMe3)2. MOCVD of this complex afforded Cu films (10-300 nm thickness) deposited on a variety of surfaces.

IC ICM C07F001-08
ICS C07F005-00; C07F007-02; C07F019-00

CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 21

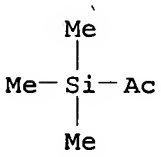
IT **Vapor deposition** process
(**metalorg.**; of metal complexes of Group IVA element-substituted β-diketonates and analogs)

IT 7440-50-8P, Copper, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(**films**; MOCVD of copper complex of silylated β-diketonate to give copper **films**)

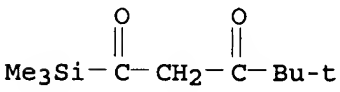
IT 598-98-1 3282-30-2, Trimethylacetyl chloride 5469-26-1, Bromopinacolone 13411-42-2 **13411-48-8** 18000-27-6 286854-94-2, Trimethylthioacetyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(for preparation of Group IVA element-substituted β-diketonates and analogs)

IT 55107-14-7P **286854-89-5P 306307-60-8P 306307-61-9P 306307-62-0P 306307-63-1P 306307-65-3P 306307-66-4P 306307-67-5P 306307-68-6P**
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)

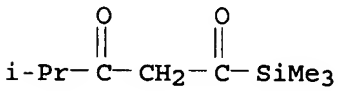
(preparation and complexation with metals)
IT **13411-48-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(for preparation of Group IVA element-substituted β-diketonates and analogs)
RN 13411-48-8 HCAPLUS
CN Silane, acetyltrimethyl- (CA INDEX NAME)



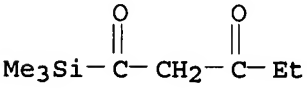
IT **286854-89-5P 306307-60-8P 306307-61-9P**
306307-62-0P 306307-63-1P 306307-65-3P
306307-66-4P 306307-67-5P 306307-68-6P
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and complexation with metals)
RN 286854-89-5 HCAPLUS
CN 3-Pentanone, 4,4-dimethyl-1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



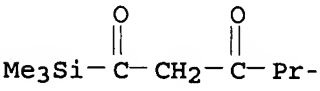
RN 306307-60-8 HCAPLUS
CN 3-Pentanone, 4-methyl-1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



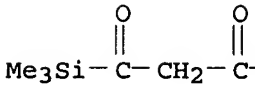
RN 306307-61-9 HCAPLUS
CN 3-Pentanone, 1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



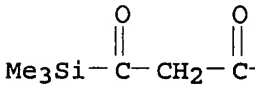
RN 306307-62-0 HCAPLUS
CN 3-Hexanone, 1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



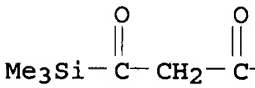
RN 306307-63-1 HCAPLUS
CN 3-Hexanone, 5-methyl-1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



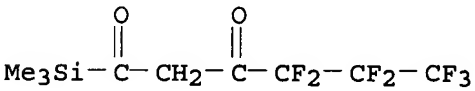
RN 306307-65-3 HCAPLUS
CN 3-Heptanone, 1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



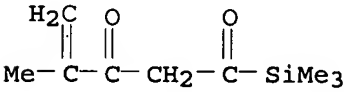
RN 306307-66-4 HCAPLUS
CN 2-Butanone, 1,1,1-trifluoro-4-oxo-4-(trimethylsilyl)- (9CI) (CA INDEX NAME)



RN 306307-67-5 HCAPLUS
CN 3-Hexanone, 4,4,5,5,6,6,6-heptafluoro-1-oxo-1-(trimethylsilyl)- (9CI) (CA INDEX NAME)



RN 306307-68-6 HCAPLUS
CN 1-Penten-3-one, 2-methyl-5-oxo-5-(trimethylsilyl)- (9CI) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 50 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:677489 HCAPLUS
DN 133:274471
TI Solution source material for forming MOCVD copper thin film and copper thin film itself
IN Itsuki, Atsushi; Hirakoso, Hideyuki; Ogi, Katsumi
PA Mitsubishi Materials Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 34 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000265273	A	20000926	JP 1999-14740	19990122 <--
	JP 3480488	B2	20031222		
PRAI	JP 1999-6236	A	19990113 <--		

AB The title solution comprises a Cu(I) organometallic compound and ≥1 of a β-diketone, trifluoroacetone, hexafluoroacetone, β-diketone hydroxide, and their hydrates. Alternatively, the title solution comprises a Cu(I) organometallic compound and ≥1 of dimethylcyclooctadiene, an alkylsilane, alkoxysilane, and their hydrates or an acetylene or alkane derivative The solution is useful for depositing a Cu film having a high bonding strength efficiently at a high speed.

IC ICM C23C016-18
ICS H01L021-285

CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 76

IT **Vapor deposition** process
(**metalorg.**; solution source material for forming MOCVD copper thin **film** and copper thin **film** itself)

IT Solutions
(solution source material for forming MOCVD copper thin **film** and copper thin **film** itself)

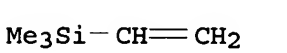
IT 78-08-0, Triethoxyvinylsilane 98-83-9, Methyl styrene, uses 107-39-1, 2, 4,4-Trimethyl-1-pentene 107-40-4, 2, 4,4-Trimethyl-2-pentene 123-54-6, Acetylacetone, uses 300-57-2, Allylbenzene 367-57-7, Trifluoroacetylacetone 421-50-1 513-35-9, 2-Methyl-2 butene 558-37-2, 3,3-Dimethyl-1-butene 563-46-2, 2-Methyl-1-butene 563-78-0, 2,3-Dimethyl-1-butene 563-79-1, 2,3-Dimethyl-2-butene 565-77-5, 2, 3,4-Trimethyl-2-pentene 592-41-6, 1-Hexene, uses 592-43-8, 2-Hexene 592-47-2, 3-Hexene 594-56-9, 2, 3,3-Trimethyl-1-butene 625-27-4, 2-Methyl-2-pentene 684-16-2, Hexafluoroacetone 691-37-2, 4-Methyl-1-pentene 693-02-7, 1-Hexyne **754-05-2**, Trimethylvinylsilane **754-05-2D**, Trimethylvinylsilane, complexes with copper and hexafluoroacetylacetone 760-20-3, 3-Methyl-1-pentene **762-72-1**, Allyltrimethylsilane **762-72-1D**, Allyltrimethylsilane, complexes with copper and hexafluoroacetylacetone 763-29-1, 2-Methyl-1-pentene 917-92-0, 3,3-Dimethyl-1-butyne 922-61-2, 3-Methyl-2-pentene 1120-36-1, 1-Tetradecene 1522-22-1D, Hexafluoroacetylacetone, complexes with silanes and copper 2550-04-1, Allyltriethoxysilane 2551-83-9, Allyltrimethoxysilane 2768-02-7, Trimethoxyvinylsilane 4461-48-7, 4-Methyl-2-pentene 6094-02-6, 2-Methyl-1-hexene 7440-50-8D, Copper, complexes with silanes and hexafluoroacetylacetone, uses 23056-94-2 25377-72-4, Pentene 26856-36-0, Pentyne 62882-98-8, Dimethylcyclooctadiene
RL: NUU (Other use, unclassified); USES (Uses)
(solution source material for forming MOCVD copper thin **film** and copper thin **film** itself)

IT 7440-50-8, Copper, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(solution source material for forming MOCVD copper thin **film** and copper thin **film** itself)

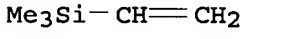
IT **754-05-2**, Trimethylvinylsilane **754-05-2D**, Trimethylvinylsilane, complexes with copper and hexafluoroacetylacetone **762-72-1**, Allyltrimethylsilane **762-72-1D**, Allyltrimethylsilane, complexes with copper and hexafluoroacetylacetone
RL: NUU (Other use, unclassified); USES (Uses)
(solution source material for forming MOCVD copper thin **film** and copper thin **film** itself)

RN 754-05-2 HCAPLUS

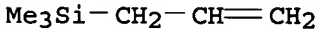
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



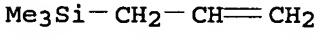
RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



RN 762-72-1 HCAPLUS
CN Silane, trimethyl-2-propen-1-yl- (CA INDEX NAME)



RN 762-72-1 HCAPLUS
CN Silane, trimethyl-2-propen-1-yl- (CA INDEX NAME)



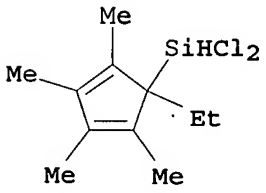
L24 ANSWER 51 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:349820 HCAPLUS
DN 133:281827
TI The synthesis of cyclopentadienyl silanes and disilanes and their fragmentation under thermal CVD conditions
AU Klipp, A.; Petri, S. H. A.; Jutzi, P.; Hamelmann, F.; Heinzmann, U.
CS Fakultat fur Chemie, Universitat Bielefeld, Bielefeld, D-33615, Germany
SO Organosilicon Chemistry IV: From Molecules to Materials, [Lectures and Poster Contributions presented at the Muechner Silicontage], 4th, Muechen, Apr., 1998 (2000), Meeting Date 1998, 806-811. Editor(s): Auner, Norbert; Weis, Johann. Publisher: Wiley-VCH Verlag GmbH, Weinheim, Germany.
CODEN: 68ZMAL
DT Conference
LA English
AB The new chloro(cyclopentadienyl)silanes CpxSiHyCl3-y (Cpx = C5Me4Et, y = 1(1); Cpx = C5Me4H, y = 1(2); y = 0(3); Cpx = C5Me3H2, y = 1(4)) and pentachloro(cyclopentadienyl)disilanes CpxSi2Cl5 (Cpx = C5Me5 (5), C5Me4Et (6), C5Me4H (7), C5Me3H2 (8)) were synthesized via metathesis reactions in good yields. Treatment of 1-8 with LiAlH4 leads to the hydridosilyl (CpxSiH3; Cpx = C5Me4Et (9), C5Me4H (10), C5Me3H2 (11)) and hydridodisilanyl compds. (CpxSi2H5; Cpx = C5Me5 (12), C5Me4Et (13), C5Me4H (14), C5Me3H2 (15)). Pyrolysis studies on the volatile cyclopentadienylsilanes 9-11 and -disilanes 12-15 show their suitability as precursors in the CVD process. The fragmentation pathway of (C5Me5)Si2H5 (12) in the thermal CVD process is proved by in-situ mass spectrometry. Crystal structure anal. for 6 and 7 provide selected bond lengths.
CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22, 75
IT **299422-09-6P 299422-15-4P 299422-21-2P**
299422-27-8P 299422-31-4P 299422-38-1P

RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and reaction with lithium aluminum hydride)

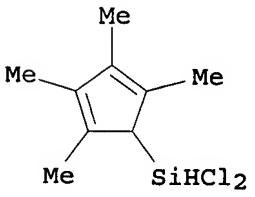
IT **159767-84-7P 299422-40-5P 299422-45-0P**
299422-52-9P 299422-58-5P 299422-63-2P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); **PREP (Preparation)**; PROC (Process)
(preparation and thermal stability in relation to silicon film **vapor deposition**)

IT **299422-09-6P 299422-15-4P 299422-21-2P**
299422-27-8P
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and reaction with lithium aluminum hydride)

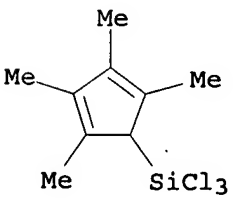
RN 299422-09-6 HCAPLUS
CN Silane, dichloro(1-ethyl-2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)-(9CI) (CA INDEX NAME)



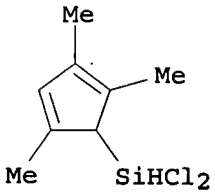
RN 299422-15-4 HCAPLUS
CN Silane, dichloro(2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)- (9CI) (CA INDEX NAME)



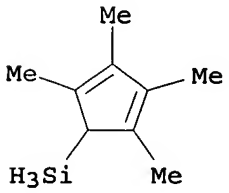
RN 299422-21-2 HCAPLUS
CN Silane, trichloro(2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)- (9CI) (CA INDEX NAME)



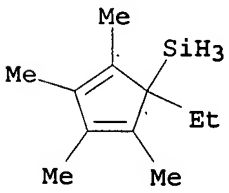
RN 299422-27-8 HCAPLUS
CN Silane, dichloro(2,3,5-trimethyl-2,4-cyclopentadien-1-yl)- (9CI) (CA INDEX NAME)



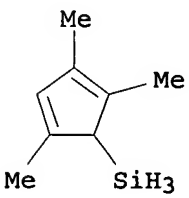
IT **159767-84-7P 299422-40-5P 299422-45-0P**
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); **PREP (Preparation)**; PROC (Process)
(preparation and thermal stability in relation to silicon film **vapor deposition**)
RN 159767-84-7 HCAPLUS
CN Silane, (2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)- (9CI) (CA INDEX NAME)



RN 299422-40-5 HCAPLUS
CN Silane, (1-ethyl-2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)- (9CI) (CA INDEX NAME)



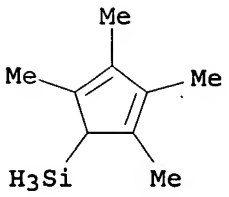
RN 299422-45-0 HCAPLUS
CN Silane, (2,3,5-trimethyl-2,4-cyclopentadien-1-yl)- (9CI) (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 52 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:349819 HCAPLUS
DN 133:81703
TI In-situ controlled deposition of thin silicon films by hot-filament MOCVD with (C5Me5)Si2H5 and (C5Me4H)SiH3 as silicon precursors
AU Hamelmann, F.; Haindl, G.; Hartwich, J.; Kleineberg, U.; Heinzmann, U.; Klipp, A.; Petri, S. H. A.; Jutzi, P.
CS Fakultat fur Physik, Universitat Bielefeld, Bielefeld, D-33615, Germany
SO Organosilicon Chemistry IV: From Molecules to Materials, [Lectures and Poster Contributions presented at the Muechner Silicontage], 4th, Muechen, Apr., 1998 (**2000**), Meeting Date 1998, 798-805. Editor(s): Auner, Norbert; Weis, Johann. Publisher: Wiley-VCH Verlag GmbH, Weinheim, Germany.
CODEN: 68ZMAL
DT Conference
LA English
AB W/Si multilayers with 14 double layers (double layer spacing d = 24 nm) were deposited on Si [100] substrates with hot-filament metal organic chemical **vapor deposition** (MOCVD). The layer thickness and growth was controlled by an in-situ X-ray reflectivity measurement. Cyclopentadienyl substituted silanes (C5Me5)Si2H5 and (C5Me4H)SiH3 were used as silicon precursors, while W(CO)6 was used for the tungsten deposition. The resulting multilayers were characterized by cross-section transmission electron microscopy (XTEM) and sputter auger electron spectroscopy (AES). In addition, the fragmentation of the silicon precursors was studied by mass spectroscopy.
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 66
IT **Vapor deposition** process
(**metalorg.**; in-situ controlled **deposition** of thin W/Si multilayer **films** by hot-filament MOCVD with (C5Me5)Si2H5 and (C5Me4H)SiH3 as silicon precursors and W(CO)6 as a tungsten precursor)
IT **Films**
(multilayer; in-situ controlled deposition of thin W/Si multilayer **films** by hot-filament MOCVD with (C5Me5)Si2H5 and (C5Me4H)SiH3 as silicon precursors and W(CO)6 as a tungsten precursor)
IT 7440-21-3, Silicon, properties 7440-33-7, Tungsten, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(in-situ controlled deposition of thin W/Si multilayer **films** by hot-filament MOCVD with (C5Me5)Si2H5 and (C5Me4H)SiH3 as silicon precursors and W(CO)6 as a tungsten precursor)
IT 14040-11-0, Hexacarbonyl tungsten **159767-84-7** 256663-66-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(in-situ controlled deposition of thin W/Si multilayer **films** by hot-filament MOCVD with (C5Me5)Si2H5 and (C5Me4H)SiH3 as silicon precursors and W(CO)6 as a tungsten precursor)
IT **159767-84-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(in-situ controlled deposition of thin W/Si multilayer **films** by hot-filament MOCVD with (C5Me5)Si2H5 and (C5Me4H)SiH3 as silicon precursors and W(CO)6 as a tungsten precursor)
RN 159767-84-7 HCAPLUS
CN Silane, (2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)- (9CI) (CA INDEX NAME)



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 53 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:317299 HCAPLUS
DN 132:327938
TI Apparatus and method for manufacture of films by metalorganic **vapor deposition** in semiconductor device fabrication
IN Wada, Yuichi; Yarita, Hiroyuki; Aita, Hisashi; Yoshida, Naomi
PA Applied Materials, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

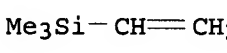
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000138187	A	20000516	JP 1998-308671	19981029 <--
	JP 3065042	B2	20000712		
PRAI	JP 1998-308671		19981029 <--		

AB In manufacture of the films by (1) applying organometallic compound-based liqs. on substrates at a lower temperature than reaction temperature of the organometallic compds. and (2) heating the substrates for pyrolysis of the organometallic compds. to form films, gases are blown to outer peripheral parts of opposite faces to liquid-applied faces of the substrates or outer peripheral faces of the substrates in step 1 or 2. The apparatus used for the method is also claimed. Films are not deposited on bevel parts of substrates by the method.
IC ICM H01L021-288
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 76
IT Semiconductor device fabrication
(apparatus and method for manufacture of **films** by MOCVD with gas blowing in semiconductor device fabrication)
IT **Vapor deposition** apparatus
Vapor deposition process
(**metalorg.**; apparatus and method for manufacture of **films** by MOCVD with gas blowing in semiconductor device fabrication)
IT 7440-50-8P, Copper, processes
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(apparatus and method for manufacture of **films** by MOCVD with gas blowing in semiconductor device fabrication)
IT **754-05-2**, Trimethylvinylsilane
RL: NUU (Other use, unclassified); USES (Uses)
(apparatus and method for manufacture of **films** by MOCVD with gas blowing in semiconductor device fabrication)
IT 139566-53-3, (Hexafluoroacetylacetonato)(trimethylvinylsilane)copper(I)

RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(apparatus and method for manufacture of **films** by MOCVD with gas blowing in semiconductor device fabrication)

IT **754-05-2**, Trimethylvinylsilane
RL: NUU (Other use, unclassified); USES (Uses)
(apparatus and method for manufacture of **films** by MOCVD with gas blowing in semiconductor device fabrication)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



L24 ANSWER 54 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:219192 HCAPLUS
DN 132:258433
TI MOCVD of metallic copper thin film on substrates
IN Kobayashi, Akiko; Koide, Tomoaki; Sekiguchi, Atsushi
PA Anelva Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000096243	A	20000404	JP 1998-287321	19980924 <--
PRAI JP 1998-287321		19980924 <--		

AB A MOCVD of a metallic copper thin film on a number of substrates being fed to a reactor one by one using a metalorg. compound involves introducing O into the reactor prior to feeding a next substrate to obtain a stable deposition condition. Specifically, the metalorg. compound may comprise a hexafluoroacetylacetonato copper derivative

IC ICM C23C016-455
ICS H01L021-285; H01L021-3205
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 76

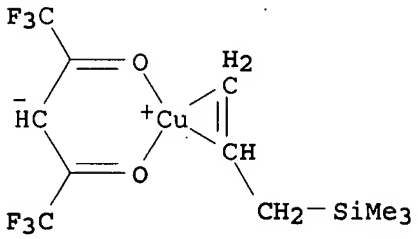
IT **Vapor deposition** process
(**metalorg.**; MOCVD of metallic copper thin **film** on substrates)

IT 7782-44-7, Oxygen, uses 139566-53-3 **173341-67-8**
RL: NUU (Other use, unclassified); USES (Uses)
(MOCVD of metallic copper thin **film** on substrates)

IT 7440-50-8, Copper, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(MOCVD of metallic copper thin **film** on substrates)

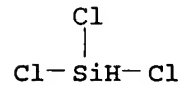
IT **173341-67-8**
RL: NUU (Other use, unclassified); USES (Uses)
(MOCVD of metallic copper thin **film** on substrates)

RN 173341-67-8 HCAPLUS
CN Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[(2,3-η)-trimethyl-2-propenylsilane]- (9CI) (CA INDEX NAME)



L24 ANSWER 55 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:684069 HCAPLUS
DN 132:67836
TI Synthesis of carbon nitride, silicon dioxide and silicon nitride by electron cyclotron resonance chemical vapor deposition
AU Moran, M. B.; Johnson, L. F.
CS Naval Air Warfare Center, China Lake, CA, USA
SO Annual Technical Conference Proceedings - Society of Vacuum Coaters (**1998**), 41st, 226-231
CODEN: ATCCDI; ISSN: 0731-1699
PB Society of Vacuum Coaters
DT Journal
LA English
AB Results reported last year showed that a crystalline phase of chlorine-doped carbon nitride (CNx:Cl) can be deposited using electron cyclotron resonance chemical vapor deposition (ECR-CVD) [1]. During the past year, efforts concentrated on improving the long-term-moisture stability of the ECR-CVD CNx:Cl films. The instability of the films with respect to moisture incorporation was attributed to a combination of porosity and the presence of a small amount of chlorine. From last year's results, it appears that double-bonded CC precursors are needed for nitrogen to react with carbon. The results also showed that chlorinated instead of hydrogenated precursors should be used to eliminate hydrogen incorporation during the growth of the ECR-CVD carbon nitride film. When hydrogenated precursors are used, hydrogen reacts with the CC double bonds in the precursor to form CH and with the nitrogen gas to form NH faster than nitrogen can react to form CN bonds. Chlorinated hydrocarbon precursors like trichloroethylene and tetrachloroethylene reduce the amount of hydrogen in the plasma and make the formation of CN bonds more favorable. The disadvantage of chlorinated precursors is that the resulting carbon nitride films contain a small amount of chlorine. Addnl. results presented this year show that it is much easier to obtain stable, dense films using chlorinated precursors if more conventional materials are being deposited. Recently, silicon dioxide (SiO2) and silicon nitride (Si3N4) films were deposited by ECR-CVD using trichlorosilane (SiHCl3). The films show no degradation or moisture incorporation after several weeks.
CC 57-2 (Ceramics)
IT 79-01-6P, Ethene, trichloro-, preparation 127-18-4P, Ethene, tetrachloro-, preparation 7631-86-9P, Silica, preparation **10025-78-2P**, Trichlorosilane 12033-89-5P, Silicon nitride (Si3N4), preparation 154769-61-6P, Carbon nitride
RL: NUU (Other use, unclassified); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(synthesis of carbon nitride, silicon dioxide, and silicon nitride by electron cyclotron resonance chemical **vapor deposition**
)
IT **10025-78-2P**, Trichlorosilane

RL: NUU (Other use, unclassified); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(synthesis of carbon nitride, silicon dioxide, and silicon nitride by electron cyclotron resonance chemical **vapor deposition**
)
RN 10025-78-2 HCAPLUS
CN Silane, trichloro- (CA INDEX NAME)



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

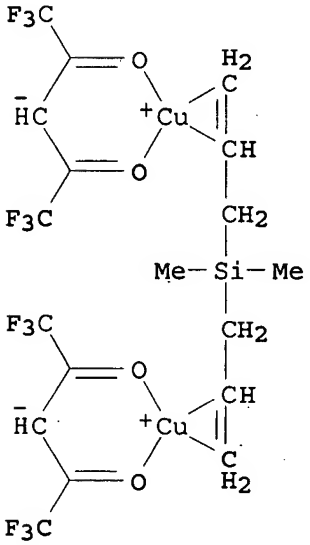
L24 ANSWER 56 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:597148 HCAPLUS
DN 131:236031
TI Method and material for deposition of metal film
IN Machida, Hideaki; Kuniwake, Hiroshi
PA Tori Chemical Kenkyusho K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 11256330	A	19990921	JP 1998-55179	19980306 <--
PRAI JP 1998-55179		19980306 <--		

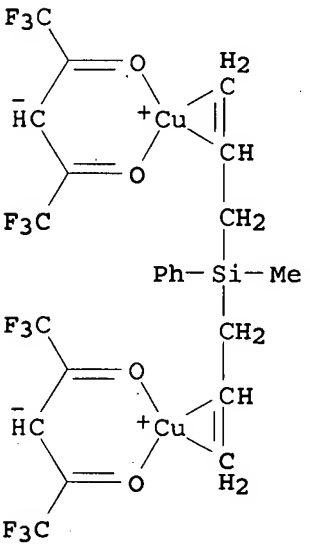
OS MARPAT 131:236031
AB A method for forming a high-quality metal film involves supplying a complex having ≥2 units of a monovalent metal coordinated to a β-diketone into a chamber containing a substrate, depositing a metal film on the substrate by the decomposition of the complex, and carrying out dry/wet plating the metal film. Optionally, the dry plating may involves using a complex having a unit of a monovalent metal coordinated to a β-diketone. The method is useful for forming a Cu film. Specific copper complexes for forming a Cu film are also given.
IC ICM C23C016-18
CC 75-1 (Crystallography and Liquid Crystals)
IT **Vapor deposition** process
(**metalorg.**; method and material for **deposition** of metal **film**)
IT Metals, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(method and material for deposition of metal **film**)
IT 95345-05-4 95345-13-4 137039-38-4 139566-53-3 219823-17-3
244105-26-8 244105-27-9 244105-28-0 244105-29-1 244105-30-4
244105-31-5 **244105-32-6 244105-33-7**
244105-34-8 244105-35-9 244105-36-0 244105-37-1
244105-38-2 244105-39-3 244107-96-8
RL: NUU (Other use, unclassified); USES (Uses)
(method and material for deposition of copper **film**)
IT 7440-50-8, Copper, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(method and material for deposition of copper **film**)

IT **244105-32-6 244105-33-7 244105-34-8**
244105-35-9
RL: NUU (Other use, unclassified); USES (Uses)
(method and material for deposition of copper **film**)

RN 244105-32-6 HCAPLUS
CN Copper, [μ-(η2:η2-dimethyldi-2-propenylsilane)]bis(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')di- (9CI) (CA INDEX NAME)

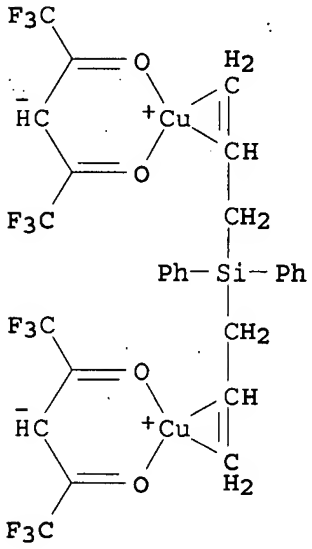


RN 244105-33-7 HCAPLUS
CN Copper, bis(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[μ-(η2:η2-methylphenyldi-2-propenylsilane)]di- (9CI) (CA INDEX NAME)

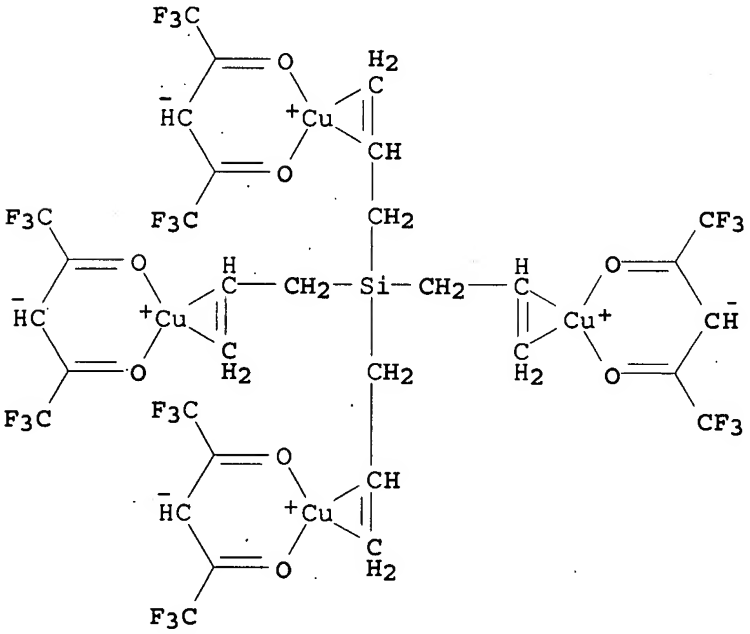


RN 244105-34-8 HCAPLUS
CN Copper, [μ-(η2:η2-diphenyldi-2-propenylsilane)]bis(1,1,1,5,5,5-

hexafluoro-2,4-pentanedionato-κO,κO')di- (9CI) (CA INDEX NAME)



RN 244105-35-9 HCAPLUS
CN Copper, tetrakis(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[μ4-(η2:η2:η2:η2-tetra-2-propenylsilane)]tetra- (9CI) (CA INDEX NAME)



L24 ANSWER 57 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:421828 HCAPLUS
DN 131:52338
TI Gas trap for unreacted organic metal-film precursor from the exhaust stream

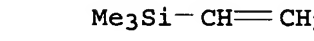
of OMCVD apparatus
IN Schmitt, John Vincent; Chen, Ling; Bleyle, George Michael; Cong, Yu; Mak, Alfred; Chang, Mei
PA Applied Materials, Inc., USA
SO PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9932686	A1	19990701	WO 1998-US23631	19981106 <--
	W: JP, KR				
	US 6099649	A	20000808	US 1997-996735	19971223 <--
	TW 460605	B	20011021	TW 1998-87118299	19981103 <--
	JP 2001527158	T	20011225	JP 2000-525599	19981106 <--
	US 6402806	B1	20020611	US 2000-608659	20000630 <--
PRAI	US 1997-996735	A	19971223 <--		
	WO 1998-US23631	W	19981106 <--		

AB A hot trap converts unreacted organic metal-film precursor from the exhaust stream of a CVD process. The converted precursor forms a metal film on the surface of the hot trap, thereby protecting hot vacuum pump surfaces from metal build up. A cold trap downstream from the hot trap freezes effluents from the exhaust stream. The metal captured by the hot trap and the effluents captured by the cold trap may then be recycled, rather than being released as environmental emissions.

IC ICM C23C016-44
CC 75-1 (Crystallography and Liquid Crystals)
IT Cold traps
Vacuum pumps
Vapor deposition apparatus
(gas trap for unreacted organic metal-**film** precursor from exhaust stream of OMCVD apparatus)
IT Metals, processes
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(gas trap for unreacted organic metal-**film** precursor from exhaust stream of OMCVD apparatus)
IT Trapping apparatus
(hot; gas trap for unreacted organic metal-**film** precursor from exhaust stream of OMCVD apparatus)
IT **Vapor deposition** process
(**metalorg.**; gas trap for unreacted organic metal-**film** precursor from exhaust stream of OMCVD apparatus)
IT **754-05-2**, Trimethylvinylsilane 139566-53-3, CupraSelect
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(gas trap for unreacted organic metal-**film** precursor from exhaust stream of OMCVD apparatus)
IT 7440-50-8P, Copper, processes
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(gas trap for unreacted organic metal-**film** precursor from exhaust stream of OMCVD apparatus)
IT **754-05-2**, Trimethylvinylsilane
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(gas trap for unreacted organic metal-**film** precursor from exhaust stream of OMCVD apparatus)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 58 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:289408 HCAPLUS
DN 130:304356
TI Processes for the chemical **vapor deposition** and solvent used for the processes
IN Hideaki, Machida; Masakazu, Nakagawa; Kurihara, Megumi; Kokubun, Hiroshi; Shigyo, Masamichi; Hiroshi, Sudoh
PA Tri Chemical Laboratory Inc., Japan
SO U.S., 9 pp., Cont. of U.S. Ser. No. 560,743, abandoned.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 5900279	A	19990504	US 1997-845079	19970418 <--
PRAI US 1995-560743	B1	19951120 <--		

AB Processes are offered for CVD that enables one to use a new metalorg. compound as a raw material resource. The steps involve: adding a metalorg. compound having a group capable of becoming free to a liquid of a compound having the same group as the group capable of becoming free of the metalorg. compound to prepare a solution; vaporizing the solution; decomposing the metalorg. compound; and depositing a metallic film on a substrate. For example, using a mixture of AlH3.NMe2Et and ethyldimethylamine solvent, Al films can be obtained.
IC ICM C23C016-18
INCL 427248100
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 29, 78
IT Solvents
(CVD of **films** using metalorg. compound with compound having group capable of becoming free as solvent)
IT **Vapor deposition** process
(**metalorg.**; of **films** using **metalorg.** compound with compound having group capable of becoming free as solvent)
IT 598-56-1
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(metalorg. CVD of aluminum **film** using trihydro(ethyldimethylamine)aluminum and ethyldimethylamine solvent)
IT 7429-90-5, Aluminum, processes 124330-23-0, (N,N-Dimethylethanamine)trihydroaluminum
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(metalorg. CVD of aluminum **film** using trihydro(ethyldimethylamine)aluminum and ethyldimethylamine solvent)
IT **754-05-2**, Trimethylvinylsilane
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(metalorg. CVD of copper **films** using

(hexafluoroacetylacetonato)(trimethylvinylsilane)copper and trimethylvinylsilane solvent)

IT 7440-50-8, Copper, processes 139566-53-3, (Hexafluoroacetylacetonato)(trimethylvinylsilane)copper
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(metalorg. CVD of copper **films** using (hexafluoroacetylacetonato)(trimethylvinylsilane)copper and trimethylvinylsilane solvent)

IT 1522-22-1, Hexafluoroacetylacetone
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(metalorg. CVD of copper **films** using (hexafluoroacetylacetonato)copper and hexafluoroacetylacetone)

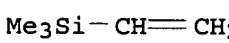
IT 80612-03-9, (Hexafluoroacetylacetonato)copper
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(metalorg. CVD of copper **films** using (hexafluoroacetylacetonato)copper and hexafluoroacetylacetone)

IT 109-89-7, Diethylamine, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(metalorg. CVD of titanium **films** using tetrakis(diethylamino)titanium and diethylamine solvent)

IT 4419-47-0, Tetrakis(diethylamino)titanium 7440-32-6, Titanium, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(metalorg. CVD of titanium **films** using tetrakis(diethylamino)titanium and diethylamine solvent)

IT **754-05-2**, Trimethylvinylsilane
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(metalorg. CVD of copper **films** using (hexafluoroacetylacetonato)(trimethylvinylsilane)copper and trimethylvinylsilane solvent)

RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 59 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:14703 HCAPLUS
DN 130:142509
TI Growth rate and microstructure of copper thin films deposited with metal-organic chemical **vapor deposition** from hexafluoroacetylacetonate copper(I) allyltrimethylsilane
AU Son, Jong-Hoon; Park, Man-Young; Rhee, Shi-Woo
CS Department of Chemical Engineering, Laboratory for Advanced Materials Processing (LAMP), Pohang University of Science and Technology (POSTECH), Pohang, 790-784, S. Korea
SO Thin Solid Films (**1998**), 335(1,2), 229-236
CODEN: THSFAP; ISSN: 0040-6090
PB Elsevier Science S.A.
DT Journal
LA English
AB Metal-organic chemical **vapor deposition** of copper using the copper(I) compound, (hfac)Cu(ATMS) (hfac=hexafluoroacetylacetonate, ATMS=allyltrimethylsilane) as a precursor, was carried out on TiN surface

over a substrate temperature range of 60-275°C. The deposition temperature could be substantially lower compared with (hfac)Cu(VTMS) (VTMS=vinyltrimethylsilane). In the substrate temps. ranging from 60 to 90°C, the Arrhenius plot showed a reaction-rate-limited regime with an activation energy of 15.0 kcal/mol. Above 90°C, the deposition rate showed a feed-rate-limited regime with an activation energy of 0.1 kcal/mol. The copper films contained no detectable impurities by Auger electron spectroscopy and gave resistivities below 2.0 μΩ cm in the temperature range of 125.apprx.170°C. As substrate temperature increased, the small-grained, smooth and continuous film structure changed to large-grained and rough film structure that was poorly connected and resulted in high resistivities. The polycryst. phases with a preferred orientation of (111) and loss of selectivity were observed over a wide range of substrate temps.

CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 57, 76

IT Electric resistance
Surface roughness
(copper thin **films** deposited by MOCVD from hexafluoroacetylacetonate copper(I) allyltrimethylsilane)

IT **Vapor deposition** process
(**metalorg.**; growth rate and microstructure of copper thin **films deposited** by MOCVD from hexafluoroacetylacetonate copper(I) allyltrimethylsilane)

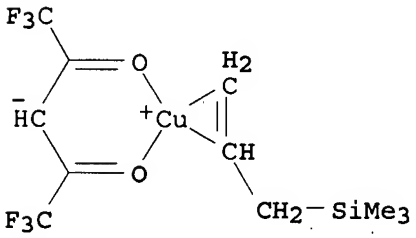
IT **173341-67-8**
RL: NUU (Other use, unclassified); USES (Uses)
(growth rate and microstructure of copper thin **films** deposited by MOCVD from hexafluoroacetylacetonate copper(I) allyltrimethylsilane)

IT 7440-50-8, Copper, processes
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(growth rate and microstructure of copper thin **films** deposited by MOCVD from hexafluoroacetylacetonate copper(I) allyltrimethylsilane)

IT **173341-67-8**
RL: NUU (Other use, unclassified); USES (Uses)
(growth rate and microstructure of copper thin **films** deposited by MOCVD from hexafluoroacetylacetonate copper(I) allyltrimethylsilane)

RN 173341-67-8 HCAPLUS

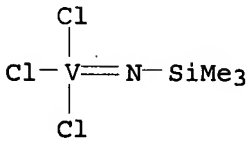
CN Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[(2,3-η)-trimethyl-2-propenylsilane]- (9CI) (CA INDEX NAME)



RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 60 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:646910 HCAPLUS
DN 129:319709
TI Potentiality of the formation of thin films within the Ti-V-C-N ceramic system using molecular precursors
AU Valade, L.; Choukroun, R.; Danjoy, C.; Chansou, B.; De Caro, D.; Cassoux, P.
CS Laboratoire de Chemie de Coordination du CNRS, Precurseurs Moleculaires et Materiaux, Toulouse, 31077, Fr.
SO Annales de Chimie (Paris) (**1998**), 23(5-6), 721-732
CODEN: ANCPAC; ISSN: 0151-9107
PB Editions Scientifiques et Medicales Elsevier
DT Journal
LA French
AB Monometallic and heterobimetallic titanium and vanadium compds. were prepared and studied as precursors to the chemical **vapor deposition** (CVD) of carbide and nitride ceramic thin films. Their thermal properties are discussed according to the chemical environment of the metal atom and their CVD behavior is studied. Two of them, CpTiCl2N(SiMe3)2 and Cp2VMe2 (Cp = C5H5), are applied to the deposition of thin films within the Ti-V-C-N quaternary system.
CC 57-2 (Ceramics)
IT **Films**
(ceramic; potentiality of formation of thin **films** within Ti-V-C-N ceramic system using mol. precursors)
IT Ceramics
(**films**; potentiality of formation of thin **films** within Ti-V-C-N ceramic system using mol. precursors)
IT **Vapor deposition** process
(**metalorg.**; potentiality of formation of thin **films** within Ti-V-C-N ceramic system using mol. precursors)
IT 12070-08-5, Titanium carbide TiC 12070-10-9, Vanadium carbide vc
12627-33-7, Titanium carbonitride 24646-85-3, Vanadium nitride vn
25583-20-4, Titanium nitride tin 37232-24-9, Vanadium carbonitride
169279-78-1, Vanadium carbide silicide
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(**films**; potentiality of formation of thin **films** within Ti-V-C-N ceramic system using mol. precursors)
IT 1270-98-0 1271-19-8 1277-47-0, Vanadocene 11078-01-6 12083-48-6
12129-51-0 12146-93-9 12701-79-0 19824-57-8 24618-62-0
37512-30-4 52676-23-0 54111-39-6 54761-79-4 59139-01-4
60955-54-6 62363-03-5 71713-64-9 71713-68-3 80545-62-6
90941-76-7 **99589-88-5** 107946-45-2 136762-09-9 136762-13-5
157369-02-3 214750-65-9 214750-66-0
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(precursor; potentiality of formation of thin **films** within Ti-V-C-N ceramic system using mol. precursors)
IT **99589-88-5**
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(precursor; potentiality of formation of thin **films** within Ti-V-C-N ceramic system using mol. precursors)
RN 99589-88-5 HCAPLUS
CN Vanadium, trichloro[1,1,1-trimethylsilanaminato(2-)]-, (T-4)- (9CI) (CA INDEX NAME)



RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

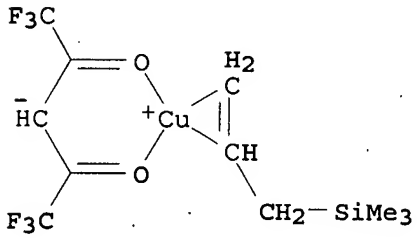
L24 ANSWER 61 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:395559 HCAPLUS
DN 129:129563
TI Chemical **vapor deposition** of copper thin films with (hexafluoroacetylacetonate)Cu(allyltrimethylsilane)
AU Park, Man-Young; Son, Jong-Hoon; Rhee, Shi-Woo
CS Laboratory for Advanced Materials Processing, Department of Chemical Engineering, Pohang University of Science and Technology, Pohang, 790-784, S. Korea
SO Electrochemical and Solid-State Letters (**1998**), 1(1), 32-33
CODEN: ESLEF6; ISSN: 1099-0062
PB Electrochemical Society
DT Journal
LA English
AB Metalorg. CVD of Cu using a new organometallic precursor, (hexafluoroacetylacetonate)Cu(allyltrimethylsilane) was studied. Cu could be deposited at a substrate temperature ≥60°. The Cu film was **deposited** at a precursor **vaporization** temperature of 40-45° and a substrate temperature of 60-170°, resulting in a Cu film with resistivity around 1.7-1.9 μΩ-cm.
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 75
IT Activation energy
(CVD of copper thin **films** with (hexafluoroacetylacetonate)Cu(allyltrimethylsilane))
IT **Films**
(elec. conductive; CVD of copper thin **films** with (hexafluoroacetylacetonate)Cu(allyltrimethylsilane))
IT Electric conductors
(**films**; CVD of copper thin **films** with (hexafluoroacetylacetonate)Cu(allyltrimethylsilane))
IT **Vapor deposition** process
(**metalorg.**; CVD of copper thin **films** with (hexafluoroacetylacetonate)Cu(allyltrimethylsilane))
IT Electric resistance
(of copper thin **films** from (hexafluoroacetylacetonate)Cu(allyltrimethylsilane))
IT Temperature
(substrate; in CVD of copper thin **films** with (hexafluoroacetylacetonate)Cu(allyltrimethylsilane))
IT **173341-67-8**, (Hexafluoroacetylacetonato)(allyltrimethylsilane)copper
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(CVD of copper thin **films** with (hexafluoroacetylacetonate)Cu(allyltrimethylsilane))
IT 7440-50-8P, Copper, processes
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP

(Preparation); PROC (Process); USES (Uses)
(CVD of copper thin **films** with (hexafluoroacetylacetonate)Cu(allyltrimethylsilane))

IT **173341-67-8**, (Hexafluoroacetylacetonato)(allyltrimethylsilane)copper
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(CVD of copper thin **films** with (hexafluoroacetylacetonate)Cu(allyltrimethylsilane))

RN 173341-67-8 HCAPLUS

CN Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[(2,3-η)-trimethyl-2-propenylsilane]- (9CI) (CA INDEX NAME)

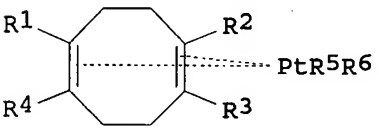


RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 62 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:59588 HCAPLUS
DN 128:174407
TI Formation of high-purity platinum thin films by MOCVD
IN Itsuki, Atsushi; Sato, Masamitsu; Ogi, Katsumi
PA Mitsubishi Materials Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10018036	A	19980120	JP 1996-169331	19960628 <--
PRAI	JP 1996-169331		19960628 <--		

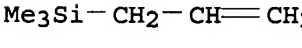
OS MARPAT 128:174407
GI



I

AB The high-purity Pt thin films are formed by quant. leading an organic solvent solution of the organic Pt compound I [R1-4 = H, C1-3 alkyl (≥1 of R1-4 is alkyl); R5, R6 = C2-4 alkyl] to a vaporization chamber, vaporizing the solution, leading the vapor with a carrier gas to a deposition chamber, and CVD. The supply quantitativeness and utilization of the raw material are

improved. The Pt thin films, especially useful for semiconductor contacts and interconnections, have good adhesion to a substrate and fine grain size of crystal.
IC ICM C23C016-18
ICS H01L021-285
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 76
IT Semiconductor devices
(contacts and interconnections; formation of high-purity platinum thin **films** by MOCVD)
IT Semiconductor device fabrication
(formation of contacts and interconnections; formation of high-purity platinum thin **films** by MOCVD)
IT **Vapor deposition** process
(**metalorg.**; formation of high-purity platinum thin **films** by MOCVD)
IT Electric contacts
Interconnections (electric)
(platinum, semiconductor device; formation of high-purity platinum thin **films** by MOCVD)
IT 1333-74-0, Hydrogen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(carrier gas; formation of high-purity platinum thin **films** by MOCVD)
IT 7440-06-4P, Platinum, preparation
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(formation of high-purity platinum thin **films** by MOCVD)
IT 180910-46-7P, Diethyl(1,5-Dimethyl-1,5-cyclooctadienyl)platinum
180910-47-8P, Diethyl(1,6-Dimethyl-1,5-cyclooctadienyl)platinum
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process)
(raw material; formation of high-purity platinum thin **films** by MOCVD)
IT 107-15-3, Ethylenediamine, uses 111-40-0, Diethylenetriamine 112-24-3, Triethylenetetramine 112-57-2, Tetraethylenepentamine **762-72-1** 62882-98-8, Dimethylcyclooctadiene
RL: NUU (Other use, unclassified); USES (Uses)
(solvent, for organic platinum compound; formation of high-purity platinum thin **films** by MOCVD)
IT **762-72-1**
RL: NUU (Other use, unclassified); USES (Uses)
(solvent, for organic platinum compound; formation of high-purity platinum thin **films** by MOCVD)
RN 762-72-1 HCAPLUS
CN Silane, trimethyl-2-propen-1-yl- (CA INDEX NAME)



L24 ANSWER 63 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:802293 HCAPLUS
DN 128:82528
TI MOCVD process for Cu-Ag alloy films and compositions therefor including trimethylsilyl groups
IN Itsuki, Atsushi; Sato, Masamitsu; Ogi, Katsumi
PA Mitsubishi Materials Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

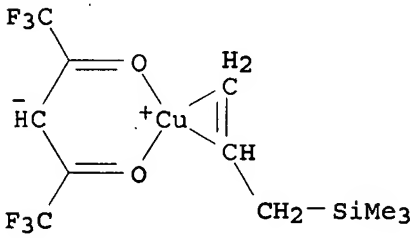
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09324271	A	19971216	JP 1996-145927	19960607 <--
PRAI	JP 1996-145927		19960607 <--		

OS MARPAT 128:82528

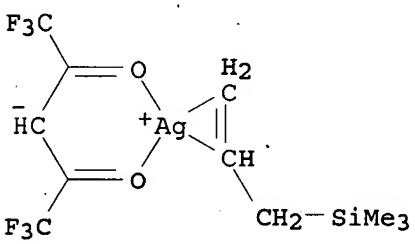
AB Title process uses sources of (hfac)Cu(I)L1 and (hfac)Ag(I)L2 (L1-2 = Me3Si-substituted olefins or alkynes, organic phosphines; hfac = 1,1,1,5,5,5-hexafluoro-2,4-pentanedionato; n = 2-4; L1 and/or L2 is Me3Si-substituted ethene or propene; L1 ≠ L2). Title compns. contain the sources and organic solvents. The as-manufactured alloy films show low resistance and good electromigration resistance, and are useful for contacts or wirings of semiconductor devices.

IC ICM C23C016-18
ICS H01L021-285; C07F001-08; C07F001-10
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 56, 76, 78
IT Electric conductors
(MOCVD sources for Cu-Ag alloy **films** with low resistance and good electromigration resistance)
IT Organometallic compounds
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(MOCVD sources; MOCVD sources for Cu-Ag alloy **films** with low resistance and good electromigration resistance)
IT **Vapor deposition** process
(**metalorg.**; MOCVD sources for Cu-Ag alloy **films** with low resistance and good electromigration resistance)
IT 12614-76-5P 12614-78-7P 12630-16-9P 58541-76-7P 86612-68-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(MOCVD sources for Cu-Ag alloy **films** with low resistance and good electromigration resistance)
IT 135707-05-0, Trimethylphosphine(1,1,1,5,5,5-Hexafluoro-2,4-pentanedionato)copper(I) 139566-53-3, Trimethylsilylethene(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)copper(I) 148630-66-4, Trimethylphosphine(1,1,1,5,5,5-Hexafluoro-2,4-pentanedionato)silver(I) 164293-94-1 166036-13-1 172210-75-2, trans-1,2-Bis(trimethylsilyl)ethylene(1,1,1,5,5,5-Hexafluoro-2,4-pentanedionato)copper(I) 172261-43-7 **173341-67-8** 185949-15-9, Trimethylsilylethene(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)silver(I) **185949-17-1**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(MOCVD sources for Cu-Ag alloy **films** with low resistance and good electromigration resistance)
IT **754-05-2**, Trimethylsilylethylene **762-72-1** 18178-59-1, trans-1,2-Bis(trimethylsilyl)ethylene 39881-79-3 **164293-95-2**
RL: TEM (Technical or engineered material use); USES (Uses)
(source solvents; MOCVD sources for Cu-Ag alloy **films** with low resistance and good electromigration resistance)
IT **173341-67-8 185949-17-1**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(MOCVD sources for Cu-Ag alloy **films** with low resistance and good electromigration resistance)
RN 173341-67-8 HCAPLUS

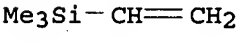
CN Copper, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[(2,3-η)-trimethyl-2-propenylsilane]- (9CI) (CA INDEX NAME)



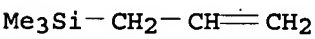
RN 185949-17-1 HCAPLUS
CN Silver, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[trimethyl[(2,3-η)-2-propenyl]silane]- (9CI) (CA INDEX NAME)



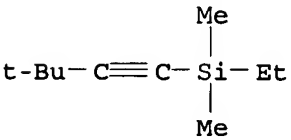
IT **754-05-2**, Trimethylsilylethylene **762-72-1** **164293-95-2**
RL: TEM (Technical or engineered material use); USES (Uses) (source solvents; MOCVD sources for Cu-Ag alloy **films** with low resistance and good electromigration resistance)
RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



RN 762-72-1 HCAPLUS
CN Silane, trimethyl-2-propen-1-yl- (CA INDEX NAME)



RN 164293-95-2 HCAPLUS
CN Silane, (3,3-dimethyl-1-butynyl)ethyldimethyl- (9CI) (CA INDEX NAME)



L24 ANSWER 64 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:610188 HCAPLUS
DN 127:256115
TI Additive fabrication of integrated ferroelectric thin-film capacitors using self-assembled organic thin-film templates
AU Jeon, Noo Li; Clem, Paul; Jung, Duk Young; Lin, Wenbin; Girolami, Gregory S.; Payne, David A.; Nuzzo, Ralph G.
CS Dep. Materials Science Engineering, Univ. Illinois Urbana-Champaign, Urbana, IL, 61801, USA
SO Advanced Materials (Weinheim, Germany) (**1997**), 9(11), 891-895
CODEN: ADVMEW; ISSN: 0935-9648
PB Wiley-VCH
DT Journal
LA English
AB A non-lithog. patterning technique based on printed organic thin films was developed for the fabrication of ferroelec. capacitors consisting of a Pt/PZT/Pt thin-film structure. First, a self-assembled monolayer (SAM) of octadecylchlorosilane (OTS) was deposited on the substrate by microcontact printing. Then, a Pt layer was deposited by MOCVD on the areas not modified by the SAMs followed by the deposition of a PZT layer via a sol-gel technique. The loosely adhering material on the OTS-derivatized regions was removed by polishing and the 2nd OTS level was aligned and printed using a conventional mask aligner. The top Pt electrodes were deposited by a CVD process and annealing at 700° completed the fabrication process for the ferroelec. capacitor. No secondary phases (pyrochlore, anatase) were detected in the samples by XRD and hysteresis loops demonstrated the reversible elec. polarization.
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 74
IT Ferroelectric capacitors
(additive patterning of integrated ferroelec. Pt/PZT/Pt thin-**film** capacitors using self-assembled organic thin-**film** templates)
IT **Vapor deposition** process
(**metalorg.**; of Pt in additive patterning of integrated ferroelec. Pt/PZT/Pt thin-**film** capacitors using self-assembled organic thin-**film** templates)
IT Sol-gel processing
(of PZT in additive patterning of integrated ferroelec. Pt/PZT/Pt thin-**film** capacitors using self-assembled organic thin-**film** templates)
IT Ferroelectricity
Phase composition
(of integrated ferroelec. Pt/PZT/Pt thin-**film** capacitors fabricated by additive patterning using self-assembled organic thin-**film** templates)
IT 7440-06-4, Platinum, properties 107478-15-9, Lead titanium zirconium oxide (PbTi0.47Zr0.53O3)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(additive patterning of integrated ferroelec. Pt/PZT/Pt thin-**film** capacitors using self-assembled organic thin-**film** templates)
IT **112-04-9**, Octadecyltrichlorosilane
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(additive patterning of integrated ferroelec. Pt/PZT/Pt thin-**film** capacitors using self-assembled organic thin-**film** templates)

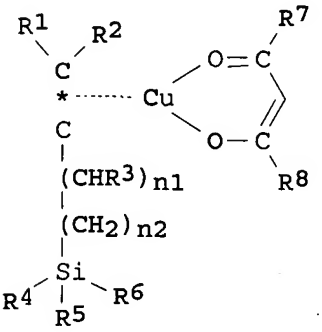
IT **112-04-9**, Octadecyltrichlorosilane
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(additive patterning of integrated ferroelec. Pt/PZT/Pt thin-**film** capacitors using self-assembled organic thin-**film** templates)
RN 112-04-9 HCAPLUS
CN Silane, trichlorooctadecyl- (CA INDEX NAME)

$Cl_3Si-(CH_2)_{17}-Me$

L24 ANSWER 65 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:479259 HCAPLUS
DN 127:95403
TI Organic copper compounds for forming copper thin film by metallo-organic chemical vapor deposition
IN Hitoshi, Atsushi; Sato, Masamitsu; Ogi, Katsumi
PA Mitsubishi Materials Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

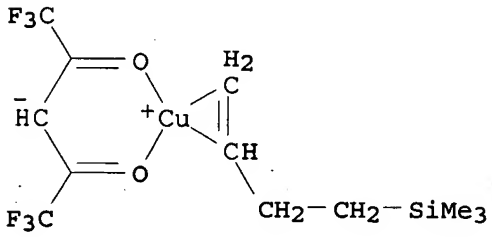
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 09151189	A	19970610	JP 1995-310814	19951129 <--
JP 3444064	B2	20030908		
PRAI JP 1995-310814		19951129 <--		

OS MARPAT 127:95403
GI



AB The title compds. (I; R1, R2, R4-R6 = H, C1-8 linear or branched alkyl, C1-4 alkylsilyl, Ph; R3 = H, C1-8 linear or branched alkyl; R7, R8 = H, C1-8 linear or branched alkyl, C1-8 perfluoroalkyl; n1 =0-2; n2 = 0-1; * = double or triple bond) containing < 0.2 ppm O are claimed. I are useful for forming copper thin film by metallo-organic chemical vapor deposition (MOCVD).
IC ICM C07F007-08
ICS C07F007-08; C23C016-18; H01L021-285; H01L021-3205
CC 29-9 (Organometallic and Organometalloidal Compounds)
IT 139566-53-3P 146249-75-4P 190383-66-5P 190383-67-6P

190383-68-7P 191540-87-1P
RL: PUR (Purification or recovery); **PREP (Preparation)**
(organic copper compds. for forming copper thin film by metallo-organic chemical
vapor deposition)
IT **190383-68-7P**
RL: PUR (Purification or recovery); **PREP (Preparation)**
(organic copper compds. for forming copper thin film by metallo-organic chemical
vapor deposition)
RN 190383-68-7 HCAPLUS
CN Copper, [[(3,4-η)-3-butenyl]trimethylsilane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



L24 ANSWER 66 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:372132 HCAPLUS
DN 127:102408
TI Structure and Stability of Patterned Self-Assembled Films of Octadecyltrichlorosilane Formed by Contact Printing
AU Jeon, Noo Li; Finnie, Krista; Branshaw, Kimberly; Nuzzo, Ralph G.
CS Department of Materials Science Engineering, School of Chemical Sciences, Urbana, IL, 61801, USA
SO Langmuir (**1997**), 13(13), 3382-3391
CODEN: LANGD5; ISSN: 0743-7463
PB American Chemical Society
DT Journal
LA English
AB The structures of thin films of octadecyltrichlorosilane (OTS) formed by contact printing and adsorption from solution on Al and SiO2/Si surfaces were studied by XPS, ellipsometry, reflection-absorption IR spectroscopy (RAIRS), SEM, and atomic force microscopy (AFM). The structures of the OTS films are strongly influenced by the method of preparation used. The films formed by contact printing for 30 s with an OTS ink are composed of close-packed, predominantly all-trans alkyl chains aligned nearly perpendicular to the surface, while films formed by adsorption of OTS for 30 s from a solution of comparable concentration are made up of sparsely adsorbed and more randomly oriented chains. Large changes in the film structure (from conformationally disordered, poorly oriented to well-packed, highly oriented hydrocarbon chains) were observed as the reaction time was increased for samples prepared by immersion in an OTS-containing solution (e.g. 15-30 min in a 1 mM solution). However, films prepared by contact printing reached or exceeded full monolayer mass coverage after only 30 s of substrate contact with an elastomeric stamp inked with a 10 mM solution of OTS in hexane. The OTS films formed by contact printing are stable at the high temps. and aggressive reaction conditions necessary for their use as mol. resists in directing the selective deposition of metal and ceramic thin films by

MOCVD and sol-gel methods, resp. Such factors as the OTS ink concentration and stamp contact time influence the patterning of OTS thin films by microcontact printing. Reactive spreading and island formation of OTS domains in regions of the pattern not in contact with the stamp limit the fidelity of the patterning carried out at dimensions less than a few microns. The authors discuss several aspects of the phys. processing which mediate these effects and propose possible methods for eliminating or greatly reducing them.

CC 76-3 (Electric Phenomena)
Section cross-reference(s): 66, 74

IT Printing (impact)
(contact; structure and stability of patterned self-assembled **films** of octadecyltrichlorosilane formed by contact printing)

IT **Vapor deposition** process
(**metalorg.**; structure and stability of patterned self-assembled **films** of octadecyltrichlorosilane formed by contact printing)

IT Adsorption
Atomic force microscopy
Ellipsometry
IR spectra
Integrated circuits
Resists
Surface structure
X-ray photoelectron spectroscopy
(structure and stability of patterned self-assembled **films** of octadecyltrichlorosilane formed by contact printing)

IT 7440-21-3, Silicon, uses 7631-86-9, Silica, uses
RL: DEV (Device component use); USES (Uses)
(structure and stability of patterned self-assembled **films** of octadecyltrichlorosilane formed by contact printing)

IT **112-04-9**, Octadecyltrichlorosilane
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(structure and stability of patterned self-assembled **films** of octadecyltrichlorosilane formed by contact printing)

IT **112-04-9**, Octadecyltrichlorosilane
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(structure and stability of patterned self-assembled **films** of octadecyltrichlorosilane formed by contact printing)

RN 112-04-9 HCAPLUS
CN Silane, trichlorooctadecyl- (CA INDEX NAME)

$Cl_3Si-(CH_2)_{17}-Me$

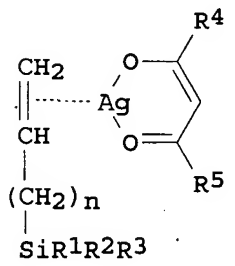
RE.CNT 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 67 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:96613 HCAPLUS
DN 126:104249
TI Preparation of organosilver compounds for silver film formation by metalorganic chemical **vapor deposition**
IN Sai, Atsushi; Uchida, Hiroto; Sato, Masamitsu; Ogi, Katsumi
PA Mitsubishi Materials Corp, Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 08301880	A	19961119	JP 1995-114578	19950512 <--
PRAI JP 1995-114578		19950512 <--		

OS CASREACT 126:104249; MARPAT 126:104249
GI



I

AB The title compds. I [R1-3 = H, C1-4 alkyl; R4, R5 = C1-4 (fluoro)alkyl; n = 0-4], useful for manufacture of Ag films for semiconductor devices, are prepared Ag2O (5.56 g) was treated with 4.13 g Me3SiCH:CH2 and 5.0 g 1,1,1,5,5,5-hexafluoro-2,4-pentanedione for 2 h to give 3.0 g I (R1-3 = Me, R4 = R5 = CF3), which was used in manufacture of Ag film by **vapor deposition** to result in 3.53 μm film thickness after 60 min.

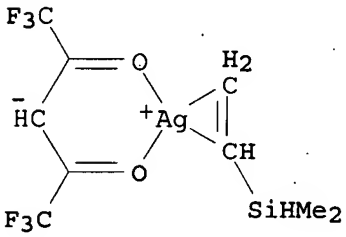
IC ICM C07F007-08
ICS H01L021-285
CC 29-9 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 56, 75, 76
ST organosilver prepn silver film formation; **vapor deposition** organosilver compd prepn; semiconductor silver film organosilver compd; silicon contg organosilver prepn; chem **vapor deposition** silicon contg organosilver
IT **Vapor deposition** process
(**metalorg.**; preparation of organosilver compds. for silver **film** formation by **metalorg.** chemical **vapor deposition**)
IT Semiconductor devices
(preparation of organosilver compds. for silver **film** formation by **metalorg.** chemical **vapor deposition**)
IT 7440-22-4P, Silver, preparation
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(preparation of organosilver compds. for silver **film** formation by **metalorg.** chemical **vapor deposition**)
IT 185949-15-9P **185949-16-0P 185949-17-1P 185949-18-2P**
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; RACT (Reactant or reagent); USES (Uses)
(preparation of organosilver compds. for silver **film** formation by

metalorg. chemical **vapor deposition**)

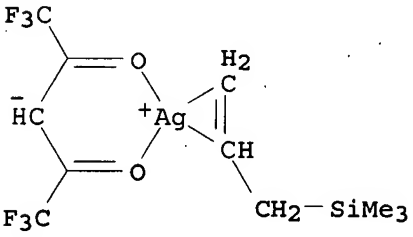
IT **754-05-2**, Trimethylvinylsilane **762-72-1**, Allyltrimethylsilane 1522-22-1, 1,1,1,5,5,5-Hexafluoro-2,4-pentanedione **3937-30-2**, Allyldimethylsilane **18243-27-1**, Dimethylvinylsilane 20667-12-3, Silver oxide
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of organosilver compds. for silver **film** formation by **metalorg.** chemical **vapor deposition**)

IT **185949-16-0P 185949-17-1P 185949-18-2P**
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; RACT (Reactant or reagent); USES (Uses)
(preparation of organosilver compds. for silver **film** formation by **metalorg.** chemical **vapor deposition**)

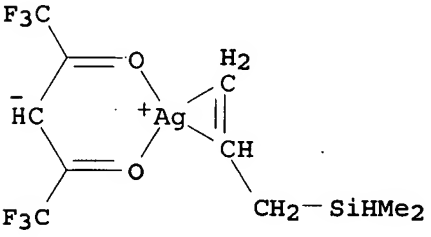
RN 185949-16-0 HCAPLUS
CN Silver, [(η2-ethenyl)dimethylsilane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



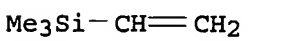
RN 185949-17-1 HCAPLUS
CN Silver, (1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')[trimethyl[(2,3-η)-2-propenyl]silane]- (9CI) (CA INDEX NAME)



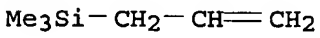
RN 185949-18-2 HCAPLUS
CN Silver, [dimethyl[(2,3-η)-2-propenyl]silane](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



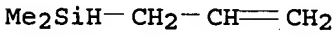
IT **754-05-2**, Trimethylvinylsilane **762-72-1**, Allyltrimethylsilane **3937-30-2**, Allyldimethylsilane **18243-27-1**, Dimethylvinylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of organosilver compds. for silver **film** formation by **metalorg.** chemical **vapor deposition**)
RN 754-05-2 HCAPLUS
CN Silane, ethenyltrimethyl- (CA INDEX NAME)



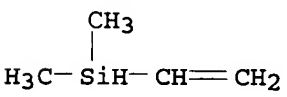
RN 762-72-1 HCAPLUS
CN Silane, trimethyl-2-propen-1-yl- (CA INDEX NAME)



RN 3937-30-2 HCAPLUS
CN Silane, dimethyl-2-propen-1-yl- (CA INDEX NAME)



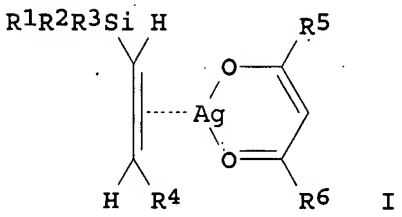
RN 18243-27-1 HCAPLUS
CN Silane, ethenyldimethyl- (9CI) (CA INDEX NAME)



L24 ANSWER 68 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1996:58053 HCAPLUS
DN 124:176524
TI Silicon-containing organosilver compounds for formation of silver film by metalorganic chemical **vapor deposition** with high **vapor** pressure
IN Saito, Noryasu; Uchida, Hiroto; Sai, Atsushi; Sato, Masamitsu; Ogi, Katsumi
PA Mitsubishi Materials Corp, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07215981	A	19950815	JP 1994-8188	19940128 <--
	JP 2785671	B2	19980813		
PRAI	JP 1994-8188		19940128 <--		

OS MARPAT 124:176524
GI



I

AB The title compds. I [R1 - R4 = alkyl; R5, R6 = fluoroalkyl] are prepared The compds. showed good thermal stability and gave Ag film at a stable vaporization rate. I [R1 = R2 = R3 = methyl; R4 = tert-butyl; R5 = R6 = CF3] was prepared in a multistep process starting with tert-butylacetylene.

IC ICM C07F007-02

CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 56, 78

ST silicon contg organosilver prepn; chem **vapor deposition**
silicon contg organosilver

IT **Vapor deposition** processes
(silicon-containing organosilver compds. for formation of silver **film** by **metalorg.** chemical **vapor deposition** with high **vapor** pressure)

IT 917-64-6, Methylmagnesium iodide 917-92-0, tert-Butylacetylene 1522-22-1, 1,1,1,5,5,5-Hexafluoro-2,4-pentanedione **10025-78-2**, Trichlorosilane 20667-12-3, Silver oxide
RL: RCT (Reactant); RACT (Reactant or reagent)
(silicon-containing organosilver compds. for formation of silver **film** by **metalorg.** chemical **vapor deposition** with high **vapor** pressure)

IT **20107-37-3P 79745-71-4P**, trans-[(1-Trichlorosilyl)-3,3-dimethyl-1-butene] 172779-43-0P
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(silicon-containing organosilver compds. for formation of silver **film** by **metalorg.** chemical **vapor deposition** with high **vapor** pressure)

IT 7440-22-4, Silver, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(silicon-containing organosilver compds. for formation of silver **film** by **metalorg.** chemical **vapor deposition** with high **vapor** pressure)

IT **10025-78-2**, Trichlorosilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(silicon-containing organosilver compds. for formation of silver **film** by **metalorg.** chemical **vapor deposition** with high **vapor** pressure)

RN 10025-78-2 HCAPLUS

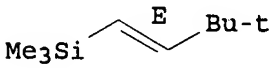
CN Silane, trichloro- (CA INDEX NAME)

IT **20107-37-3P 79745-71-4P**, trans-[(1-Trichlorosilyl)-3,3-dimethyl-1-butene]
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)

(silicon-containing organosilver compds. for formation of silver **film** by **metalorg.** chemical **vapor deposition** with high **vapor** pressure)

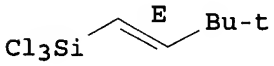
RN 20107-37-3 HCAPLUS
CN Silane, [(1E)-3,3-dimethyl-1-butenyl]trimethyl- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



RN 79745-71-4 HCAPLUS
CN Silane, trichloro(3,3-dimethyl-1-butenyl)-, (E)- (9CI) (CA INDEX NAME)

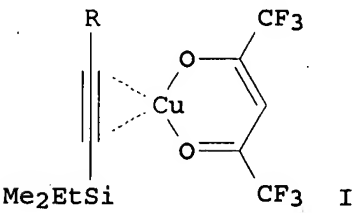
Double bond geometry as shown.



L24 ANSWER 69 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:890562 HCAPLUS
DN 124:133010
TI Organic copper compounds for formation of copper films by metalorganic chemical **vapor deposition**
IN Uchida, Hiroto; Sai, Atsushi; Sato, Masamitsu; Saito, Noryasu; Ogi, Katsumi
PA Mitsubishi Materials Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07215982	A	19950815	JP 1994-225168	19940920 <--
	JP 3284779	B2	20020520		
PRAI	JP 1994-225168	A	19940920 <--		
	JP 1993-233934		19930920 <--		

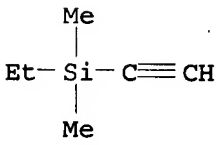
OS MARPAT 124:133010
GI



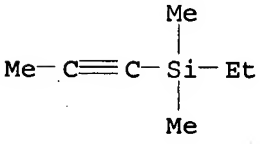
I

AB The compds. consist of liquid and pyrolyzable I (R = H, or lower alkyl). The compds have excellent thermal stability and yield Cu films at stable vaporization rate.
IC ICM C07F007-02

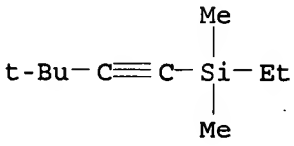
ICS C07F007-08; C23C016-18
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 75
IT Electric conductors
Vapor deposition processes
(organic copper compds. for formation of copper **films** by **metalorg.** chemical **vapor deposition**)
IT **1066-98-4P 93094-67-8P** 164293-94-1P, (η2-1-tert-Butyl-2-dimethylethylsilylacetylene)(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)copper (I) **164293-95-2P** 172778-48-2P, (η2-1-Dimethylethylsilylacetylene)(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)copper (I) 172778-49-3P, (η2-1-Methyl-2-dimethylethylsilylacetylene)(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)copper (I)
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(organic copper compds. for formation of copper **films** by **metalorg.** chemical **vapor deposition**)
IT 7440-50-8P, Copper, uses
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organic copper compds. for formation of copper **films** by **metalorg.** chemical **vapor deposition**)
IT 74-86-2, Acetylene, reactions 74-99-7, Methylacetylene 917-92-0, tert-Butylacetylene 1317-39-1, Copper oxide (Cu2O), reactions 1522-22-1, 1,1,1,5,5,5-Hexafluoro-2,4-pentanedione **6917-76-6**
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic copper compds. for formation of copper **films** by **metalorg.** chemical **vapor deposition**)
IT **1066-98-4P 93094-67-8P 164293-95-2P**
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(organic copper compds. for formation of copper **films** by **metalorg.** chemical **vapor deposition**)
RN 1066-98-4 HCAPLUS
CN Silane, ethylethynyldimethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



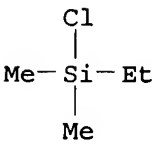
RN 93094-67-8 HCAPLUS
CN Silane, ethyldimethyl-1-propynyl- (9CI) (CA INDEX NAME)



RN 164293-95-2 HCAPLUS
CN Silane, (3,3-dimethyl-1-butynyl)ethyldimethyl- (9CI) (CA INDEX NAME)

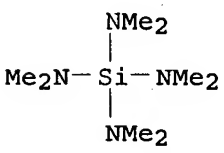


IT **6917-76-6**
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic copper compds. for formation of copper **films** by **metalorg.** chemical **vapor deposition**)
RN 6917-76-6 HCAPLUS
CN Silane, chloroethyldimethyl- (CA INDEX NAME)

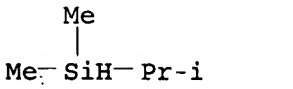


L24 ANSWER 70 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:651172 HCAPLUS
DN 123:213629
TI Plasma-enhanced chemical **vapor deposition** of silicon, germanium, and tin nitride thin films from metalorganic precursors
AU Hoffman, David M.; Rangarajan, Sri Prakash; Athavale, Satish D.; Economou, Demetre J.; Liu, Jia-Rui; Zheng, Zongshuang; KanChu, Wei
CS Dept. Chem., Univ. Houston, Houston, TX, 77204-5641, USA
SO Journal of Vacuum Science & Technology, A: Vacuum, Surfaces, and Films (**1995**), 13(3, Pt. 1), 820-5
CODEN: JVTAD6; ISSN: 0734-2101
PB American Institute of Physics
DT Journal
LA English
AB Nearly stoichiometric Si, Ge, and Sn nitride thin films were deposited from the corresponding homoleptic dimethylamido complexes M(NMe2)4 (M = Si, Ge, Sn; Me = CH3), and an NH3 plasma at low substrate temps. (<400°). Sn nitride films were also deposited from Sn(NMe2)4 and NH3 without plasma activation. The film showed little (<few atomic%) or no C or O contamination. The barrier properties of the Si and Ge nitride films were evaluated by using backscattering spectrometry. Homoleptic dimethylamido Si and Ge compds. are attractive alternatives to silane and germane for use in the plasma-enhanced CVD of nitride thin films.
CC 75-1 (Crystallography and Liquid Crystals)
IT **Vapor deposition** processes
(plasma, plasma-enhanced chemical **vapor deposition** of silicon, germanium, and tin nitride thin **films** from **metalorg.** precursors)
IT 7440-21-3, Silicon, processes 7440-56-4, Germanium, processes 55574-97-5, Tin nitride
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(plasma-enhanced chemical **vapor deposition** of silicon, germanium, and tin nitride thin **films** from **metalorg** . precursors)
IT **1624-01-7** 7344-40-3 55853-40-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(plasma-enhanced chemical **vapor deposition** of silicon,

germanium, and tin nitride thin **films** from **metalorg**
. precursors)
IT **1624-01-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(plasma-enhanced chemical **vapor deposition** of silicon, germanium, and tin nitride thin **films** from **metalorg**
. precursors)
RN 1624-01-7 HCAPLUS
CN Silanetetramine, N,N,N',N',N'',N'',N''',N'''-octamethyl- (CA INDEX NAME)



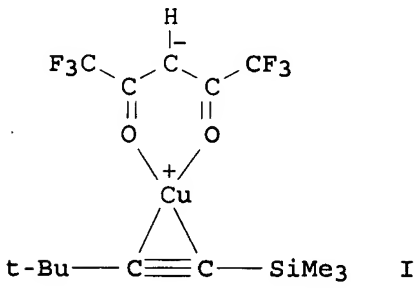
L24 ANSWER 71 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:638001 HCAPLUS
DN 123:156769
TI Deposition of cubic SiC films on silicon using dimethylisopropylsilane
AU Boo, J.-H.; Yu, K.-S.; Lee, M.; Kim. Y.
CS Inorganic Materials Division, Korea Research Institute Chemical Technology, Taejon, 305-600, S. Korea
SO Applied Physics Letters (**1995**), 66(25), 3486-8
CODEN: APPLAB; ISSN: 0003-6951
PB American Institute of Physics
DT Journal
LA English
AB The authors have grown cubic SiC films on the Si(100) and Si(111) substrates at 750-970° by low pressure organometallic CVD (LP-OMCVD) using dimethylisopropylsilane Me2CHSiHMe2 as a single mol. precursor. On a carbonized Si(100) substrate, a polycryst. cubic SiC film was obtained at 960°. Cubic-type SiC films were also grown on uncarbonized Si(100) surfaces at 850°. At lower temps., amorphous SiC films were formed. These growth temps. are much lower than those reported previously by others. On an uncarbonized Si(111) substrate, however, strongly oriented growth of cubic SiC film in the [111] direction was observed at the growth temperature of 970°.
CC 75-1 (Crystallography and Liquid Crystals)
IT **Vapor deposition** processes
(**metalorg.**; **deposition** of cubic SiC polycryst. **films** on carbonized or uncarbonized silicon using dimethylisopropylsilane)
IT 409-21-2, Silicon carbide (SiC), processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(deposition of cubic SiC polycryst. **films** on carbonized or uncarbonized silicon using dimethylisopropylsilane)
IT **18209-61-5**
RL: RCT (Reactant); RACT (Reactant or reagent)
(deposition of cubic SiC polycryst. **films** on carbonized or uncarbonized silicon using dimethylisopropylsilane)
IT **18209-61-5**
RL: RCT (Reactant); RACT (Reactant or reagent)
(deposition of cubic SiC polycryst. **films** on carbonized or uncarbonized silicon using dimethylisopropylsilane)
RN 18209-61-5 HCAPLUS
CN Silane, dimethyl(1-methylethyl)- (CA INDEX NAME)



L24 ANSWER 72 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:571517 HCAPLUS
DN 123:98726
TI Organic copper compound with high vapor pressure for manufacture of copper thin film by metalorganic chemical **vapor deposition**
IN Saito, Noryasu; Uchida, Hiroto; Ogi, Katsumi
PA Mitsubishi Materials Corp, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 07070163	A	19950314	JP 1993-220284	19930903 <--
PRAI JP 1993-220284		19930903 <--		

GI



I

AB The compound consists of (η2-1-trimethylsilyl-3,3-dimethyl-1-butyne)(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)copper(I). The compound is useful for manufacture of wiring materials of semiconductor devices. The compound showed good thermal stability in vaporization.
IC ICM C07F019-00
ICS C07F007-08; C30B029-52
ICA C30B025-02
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 29, 76
IT Electric conductors
Vapor deposition processes
(organic copper compound with high **vapor** pressure and thermal stability for manufacture of copper thin **film** by **metalorg**. CVD)
IT 7440-50-8P, Copper, preparation
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organic copper compound with high vapor pressure and thermal stability for

manufacture of copper thin **film** by metalorg. CVD)

IT 164293-96-3P
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)

IT **14630-42-3P**, 1-Trimethylsilyl-3,3-dimethyl-1-butyne
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)

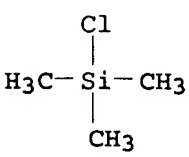
IT **75-77-4**, Chlorotrimethylsilane, reactions 917-92-0, tert-Butylacetylene 1522-22-1, 1,1,1,5,5,5-Hexafluoro-2,4-pentanedione
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)

IT **14630-42-3P**, 1-Trimethylsilyl-3,3-dimethyl-1-butyne
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)

RN 14630-42-3 HCAPLUS
CN Silane, (3,3-dimethyl-1-butyn-1-yl)trimethyl- (CA INDEX NAME)

IT **75-77-4**, Chlorotrimethylsilane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)

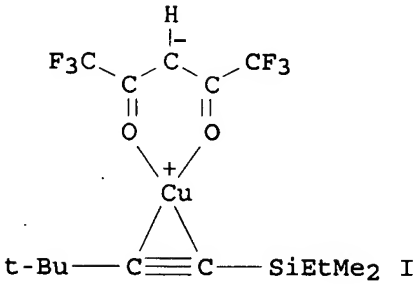
RN 75-77-4 HCAPLUS
CN Silane, chlorotrimethyl- (CA INDEX NAME)



L24 ANSWER 73 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:571516 HCAPLUS
DN 123:98725
TI Organic copper compound with high vapor pressure for manufacture of copper thin film by metalorganic chemical **vapor deposition**
IN Saito, Noryasu; Uchida, Hiroto; Ogi, Katsumi
PA Mitsubishi Materials Corp, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 07070162	A	19950314	JP 1993-220283	19930903 <--

JP 3284689 B2 20020520
PRAI JP 1993-220283 19930903 <--
GI

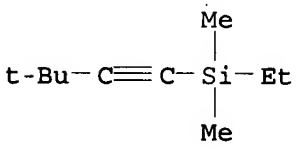


t-Bu—C≡C—SiEtMe$_2$ I

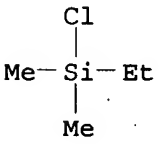
AB The compound consists of (η2-1-dimethylethylsilyl-3,3-dimethyl-1-butyne)(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)copper(I). The compound is useful for manufacture of wiring materials of semiconductor devices. The compound showed good thermal stability in vaporization.

IC ICM C07F019-00
ICS C07F007-08; C23C016-18; C30B029-52
ICA C30B025-02
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 29
IT Electric conductors
Vapor deposition processes
(organic copper compound with high **vapor** pressure and thermal stability for manufacture of copper thin **film** by **metalorg**. CVD)
IT 7440-50-8P, Copper, preparation
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)
IT 164293-94-1P
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)
IT **164293-95-2P**
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)
IT 917-92-0, tert-Butylacetylene 1522-22-1, 1,1,1,5,5,5-Hexafluoro-2,4-pentanedione **6917-76-6**, Chlorodimethylethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)
IT **164293-95-2P**
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)

RN 164293-95-2 HCAPLUS
CN Silane, (3,3-dimethyl-1-butynyl)ethyldimethyl- (9CI) (CA INDEX NAME)



IT **6917-76-6**, Chlorodimethylethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic copper compound with high vapor pressure and thermal stability for manufacture of copper thin **film** by metalorg. CVD)
RN 6917-76-6 HCAPLUS
CN Silane, chloroethyldimethyl- (CA INDEX NAME)



L24 ANSWER 74 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:245740 HCAPLUS
DN 122:36970
TI Comparison of the pyrolysis products of dichlorodimethylsilane in the chemical vapor deposition of silicon carbide on silica in hydrogen or argon
AU Cagliostro, Domenick E.; Riccitiello, Salvatore R.; Ren, Jian; Zaghi, Farshad
CS NASA Ames Res. Cent., Moffett Field, CA, 94035, USA
SO Journal of the American Ceramic Society (**1994**), 77(10), 2721-6
CODEN: JACTAW; ISSN: 0002-7820
PB American Ceramic Society
DT Journal
LA English
AB A chemical anal. of the pyrolysis gases and solids formed during the deposition of silicon carbide from the decomposition of dichlorodimethylsilane in argon and hydrogen is reported. Depositions were performed at 1 atm pressure, at 700-1100°C, and a mean residence time of approx. 1 min. The chemical anal. shows that, under reactor conditions, the gases formed were mainly methane, hydrogen, silicon tetrachloride, trichlorosilane, and trichloromethylsilane. The presence of hydrogen chloride was not examined The use of hydrogen, as a carrier gas, decreased the trichloromethylsilane and solid aerosol (smoke) in the reaction products, compared to that present in the argon system, and increased methane, trichlorosilane, and silicon production Primarily, silicon and silicon carbide were deposited when hydrogen was used as the carrier gas. When argon was used, a complex mixture of silicon carbide and organosilicon compds. was formed. It is hypothesized that, when hydrogen was used as the carrier gas, silicon carbide formed from chlorosilanes and methane, which were products from the decomposition of dichlorodimethylsilane. These products subsequently reacted to form silicon, which then reacted with methane to form silicon carbide. In argon, however, it is hypothesized that silicon carbide can be formed in two ways: (1) from the pyrolysis of

solid organosilicon compds. which are products from the pyrolysis of dichlorodimethylsilane in argon and (2) as the reduction of dichlorodimethylsilane to chlorosilanes and methane, caused by the hydrogen produced from the pyrolysis of dichlorodimethylsilane in argon.

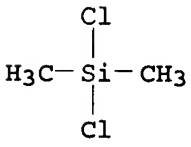
CC 57-2 (Ceramics)

IT **75-78-5**, Dichlorodimethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(precursor; comparison of the pyrolysis products of dichlorodimethylsilane in the chemical **vapor deposition** of silicon carbide on silica in hydrogen or argon)

IT 74-82-8P, Methane, preparation **75-79-6P**, Trichloromethylsilane. 409-21-2P, Silicon carbide, preparation 7440-21-3P, Silicon, preparation **10025-78-2P**, Trichlorosilane **10026-04-7P**, Silicon tetrachloride
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); **PREP (Preparation)**; PROC (Process)
(pyrolysis products; comparison of the pyrolysis products of dichlorodimethylsilane in the chemical **vapor deposition** of silicon carbide on silica in hydrogen or argon)

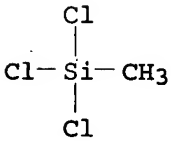
IT **75-78-5**, Dichlorodimethylsilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(precursor; comparison of the pyrolysis products of dichlorodimethylsilane in the chemical **vapor deposition** of silicon carbide on silica in hydrogen or argon)

RN 75-78-5 HCAPLUS
CN Silane, dichlorodimethyl- (CA INDEX NAME)

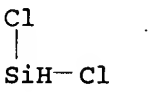


IT **75-79-6P**, Trichloromethylsilane. **10025-78-2P**, Trichlorosilane **10026-04-7P**, Silicon tetrachloride
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); **PREP (Preparation)**; PROC (Process)
(pyrolysis products; comparison of the pyrolysis products of dichlorodimethylsilane in the chemical **vapor deposition** of silicon carbide on silica in hydrogen or argon)

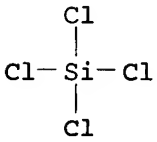
RN 75-79-6 HCAPLUS
CN Silane, trichloromethyl- (CA INDEX NAME)



RN 10025-78-2 HCAPLUS
CN Silane, trichloro- (CA INDEX NAME)

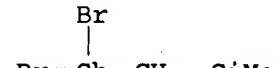


RN 10026-04-7 HCAPLUS
CN Silane, tetrachloro- (CA INDEX NAME)

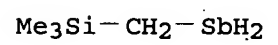


L24 ANSWER 75 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1993:560413 HCAPLUS
DN 119:160413
TI Primary and secondary trimethylsilylmethylstibines. Synthesis, characterization and chemical vapor deposition properties
AU Hendershot, D. Greg; Berry, Alan D.
CS Naval Research Laboratory, Materials Chemistry Branch, Code 6120, Washington, DC, 20375-5342, USA
SO Journal of Organometallic Chemistry (**1993**), 449(1-2), 119-23
CODEN: JORCAI; ISSN: 0022-328X
DT Journal
LA English
OS CASREACT 119:160413
AB The primary and secondary trimethylsilylmethylstibines (Me3SiCH2)SbH2 and (Me3SiCH2)2SbH have been synthesized by the reduction of a corresponding dihalo- and monohaloantimony compound, resp. Trimethylsilylmethylstibine was prepared by the reduction of (Me3SiCH2)SbBr2 with lithium aluminum hydride (LAH) in tetraglyme. The primary stibine is highly air-sensitive and exhibits a vapor pressure of 2.0 Torr at 0°.
Bis(trimethylsilylmethyl)stibine was synthesized by the LAH reduction of either (Me3SiCH2)2SbBr or (Me3SiCH2)2SbI in Et2O. The secondary stibine is less sensitive to air than (Me3SiCH2)SbH2 but nonetheless decomps. quickly when exposed to air. The detailed synthesis, spectroscopic characterizations and phys. properties of both stibines, as well as the preliminary chemical vapor deposition expts. of (Me3SiCH2)SbH2, are discussed. Safety note: the trimethylsilylmethylstibines may be very toxic.
CC 29-8 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75
IT **149970-13-8P**, Dibromo(trimethylsilylmethyl)stibine 149970-15-0P, Bromobis(trimethylsilylmethyl)stibine
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and hydride transfer reaction of, with lithium aluminum hydride)
IT **149970-14-9P**, (Trimethylsilylmethyl)stibine
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and metalorg. chemical **vapor deposition** reactions of)
IT **149970-13-8P**, Dibromo(trimethylsilylmethyl)stibine
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP**

(**Preparation**); RACT (Reactant or reagent)
(preparation and hydride transfer reaction of, with lithium aluminum hydride)
RN 149970-13-8 HCAPLUS
CN Stibine, dibromo[(trimethylsilyl)methyl]- (9CI) (CA INDEX NAME)

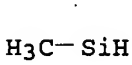


IT **149970-14-9P**, (Trimethylsilylmethyl)stibine
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and metalorg. chemical **vapor deposition** reactions of)
RN 149970-14-9 HCAPLUS
CN Stibine, [(trimethylsilyl)methyl]- (9CI) (CA INDEX NAME)

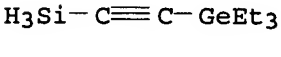


L24 ANSWER 76 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1993:13840 HCAPLUS
DN 118:13840
TI Plasma CVD of amorphous hydrogenated silicon carbide (a-SiC:H) for x-ray mask membranes using a helical resonator discharge
AU Johnson, A. D.; Mucha, J. A.; Ibbotson, D. E.
CS AT and T Bell Lab., Murray Hill, NJ, 07974, USA
SO Proceedings - Electrochemical Society (**1992**), 92-18(Proc. Symp. Plasma Process., 9th, 1992), 507-22
CODEN: PESODO; ISSN: 0161-6374
DT Journal
LA English
AB Amorphous SiC films were deposited from the single source precursor silacyclobutane (SiC3H8), SCB, in a helical resonator plasma CVD reactor. Decomposing SCB in a H2 discharge allows deposition at temps. as low as 370° with transport limited growth rates of 150 Å/min. The composition of the plasma CVD SiC is insensitive to the process variables, with films grown at 370° - 685° being near stoichiometric, independent of the SCB flow rate. A measured optical gap of 2.3 eV is consistent with a C:Si ratio of unity. The only detected impurity is H whose concentration, measured by elastic recoil detection (ERD), is 13 atomic% in SiC deposited at 685°. FTIR shows H to be unequally partitioned between C and Si: all but 1 atomic% is present as C-H for the 685° deposition. By varying the growth rate relative to the ion flux, the film stress can be controlled at 1010dyn/cm2 compressive to 1010dyn/cm2 tensile.
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 51067-84-6P, Silaethylene **55544-30-4P**, Methylsilylene
RL: FORM (Formation, nonpreparative); **PREP (Preparation)**
(formation of, in plasma chemical **vapor deposition** of amorphous hydrogenated silicon carbide from silacyclobutane)
IT **55544-30-4P**, Methylsilylene
RL: FORM (Formation, nonpreparative); **PREP (Preparation)**

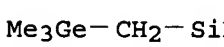
(formation of, in plasma chemical **vapor deposition** of amorphous hydrogenated silicon carbide from silacyclobutane)
RN 55544-30-4 HCAPLUS
CN Silylene, methyl- (9CI) (CA INDEX NAME)



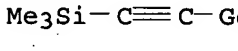
L24 ANSWER 77 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1992:431581 HCAPLUS
DN 117:31581
TI Synthesis and pyrolysis of organometallic precursors of silicon-carbon-germanium alloy amorphous thin films
AU Mazerolles, Pierre; Reynes, Alex; Sefiani, Said; Morancho, Roland
CS Lab. Organomet., Univ. Paul Sabatier, Toulouse, 31062, Fr.
SO Journal of Analytical and Applied Pyrolysis (**1991**), 22(1-2), 95-105
CODEN: JAAPDD; ISSN: 0165-2370
DT Journal
LA English
AB To obtain amorphous thin layers of Si-C-Ge alloys, a series of thermolabile organometallic derivs. were synthesized and pyrolyzed in an organometallic chemical vapor deposition apparatus While pyrolysis of 1-silyl-2-germyl-ethane and 1-silyl-3-germyl-propane gives thin layers containing only Si and Ge, amorphous Si-C-Ge alloys are obtained by controlled pyrolysis of 1-silyl-2-triethylgermyl acetylene. Comparison of the mass spectroscopy fragmentation of these precursors with their gas phase decomposition is an approach for the understanding of the thermal behavior of the organometallic mols.
CC 56-6 (Nonferrous Metals and Alloys)
IT **139111-37-8P**
RL: **PREP (Preparation)**
(synthesis and pyrolysis of, for chemical-**vapor deposition** of amorphous silicon-carbon-germanium alloy films)
IT **2290-62-2P 17846-62-7P 18419-89-1P**
RL: **PREP (Preparation)**
(synthesis and pyrolysis of, for chemical-**vapor deposition** of polycryst. silicon-carbon-germanium alloy films)
IT **139111-37-8P**
RL: **PREP (Preparation)**
(synthesis and pyrolysis of, for chemical-**vapor deposition** of amorphous silicon-carbon-germanium alloy films)
RN 139111-37-8 HCAPLUS
CN Silane, [(triethylgermyl)ethynyl]- (9CI) (CA INDEX NAME)



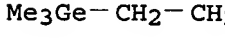
IT **2290-62-2P 17846-62-7P 18419-89-1P**
RL: **PREP (Preparation)**
(synthesis and pyrolysis of, for chemical-**vapor deposition** of polycryst. silicon-carbon-germanium alloy films)
RN 2290-62-2 HCAPLUS
CN Silane, trimethyl[(trimethylgermyl)methyl]- (7CI, 9CI) (CA INDEX NAME)



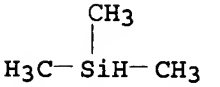
RN 17846-62-7 HCAPLUS
CN Silane, trimethyl[(triethylgermyl)ethynyl]- (8CI, 9CI) (CA INDEX NAME)



RN 18419-89-1 HCAPLUS
CN Silane, trimethyl[2-(trimethylgermyl)ethyl]- (7CI, 8CI, 9CI) (CA INDEX NAME)



L24 ANSWER 78 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1991:620562 HCAPLUS
DN 115:220562
TI Improvement of the optical and photoelectric properties of hydrogenated amorphous silicon-carbon alloys by using trisilylmethane as a feedstock
AU Li, Y. M.; Fieselmann, B. F.
CS Thin Film Div., Solarex Corp., Newtown, PA, 18940, USA
SO Applied Physics Letters (**1991**), 59(14), 1720-2
CODEN: APPLAB; ISSN: 0003-6951
DT Journal
LA English
AB Hydrogenated amorphous silicon-carbon alloys (a-SiC:H) with band gaps around 1.9 eV were prepared using trisilylmethane (TSM) as the carbon source by plasma-enhanced chemical vapor deposition. Compared to a-SiC:H alloys prepared from the conventional CH4/SiH4 mixture, the TSM-based films show sharper optical-absorption edge, weaker defect-related optical absorption, lower Me group concentration, longer ambipolar diffusion length, and higher photocond.
CC 76-5 (Electric Phenomena)
Section cross-reference(s): 73
IT **993-07-7P**, Trimethylsilane
RL: **PREP (Preparation)**
(hydrogenated amorphous silicon-carbon alloys prepared from plasma enhanced chemical **vapor deposition** with)
IT **993-07-7P**, Trimethylsilane
RL: **PREP (Preparation)**
(hydrogenated amorphous silicon-carbon alloys prepared from plasma enhanced chemical **vapor deposition** with)
RN 993-07-7 HCAPLUS
CN Silane, trimethyl- (CA INDEX NAME)



L24 ANSWER 79 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1991:229003 HCAPLUS
DN 114:229003
TI Design and synthesis of CVD precursors to thin film ceramic materials
AU Interrante, L. V.; Han, B.; Hudson, J. B.; Whitmarsh, C.
CS Rensselaer Polytech. Inst., Troy, NY, 12180, USA
SO Applied Surface Science (**1990**), 46(1-4), 5-8
CODEN: ASUSEE; ISSN: 0169-4332
DT Journal
LA English
AB The application of cyclic organometallic compds. as single source precursors for the chemical vapor deposition of materials such as AlN and SiC is discussed and new results relating to the decomposition of a novel SiC CVD precursor are presented. The decomposition of the cyclic carbosilane [μ-(CH2)2Si(CH3)(H)Si(CH3)(CH2SiH2CH3)], on a heated glassy carbon substrate in an ultra-high vacuum mol. beam system has been studied by pulsing the precursor mol. onto the surface and following the mass spectrum as a function of the substrate surface temperature The evolution of CH3SiH2, C2H5 and CH3 was evidenced, suggesting loss of excess carbon as C1 and C2 species.
CC 29-6 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 76
IT 2025-56-1P, Ethyl 2229-07-4P, Methyl **24669-75-8P**
RL: FORM (Formation, nonpreparative); **PREP (Preparation)**
(formation of, from thermolysis of organosilane, chemical **vapor deposition** of carbosilane in relation to)
IT **24669-75-8P**
RL: FORM (Formation, nonpreparative); **PREP (Preparation)**
(formation of, from thermolysis of organosilane, chemical **vapor deposition** of carbosilane in relation to)
RN 24669-75-8 HCAPLUS
CN Silyl, methyl- (8CI, 9CI) (CA INDEX NAME)

H_3C-SiH_2

L24 ANSWER 80 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1991:154770 HCAPLUS
DN 114:154770
TI Low-temperature metalorganic chemical vapor deposition (LTMOCVD) of electronic materials
AU Kaloyeros, Alain E.; Toscano, Paul J.; Rizk, Richard B.; Tulchinsky, Victor; Greene, Alex
CS Phys. Dep., State Univ. New York, Albany, NY, 12222, USA
SO Materials Research Society Symposium Proceedings (**1990**), 162(Diamond, Silicon Carbide Relat. Wide Bandgap Semicond.), 409-14
CODEN: MRSPDH; ISSN: 0272-9172
DT Journal
LA English
AB High quality amorphous and crystalline silicon carbide thin films were produced by low temperature metal-organic chemical vapor deposition (LTMOCVD) using the organometallic precursor tetraethynylsilane, Si(C2H)4. LTMOCVD, which was developed by the present investigators, uses single source precursors containing all the elemental constituents desired in the target material already directly bonded. LTMOCVD can produce compound semiconductors on thermally fragile or chemical sensitive substrates. The SiC films were grown in a hot-wall CVD reactor at a reactor pressure of 10-6-10-3 torr and substrate temperature in the range 300-700°C. Characterization studies were performed using electron diffraction (ED), Auger electron

spectroscopy (AES), Rutherford backscattering (RBS), XPS (XPS), and electron energy loss spectroscopy (EELS). The results of these studies showed that the films were uniform, continuous, adherent and highly pure-contaminant levels were below the detection limits of the techniques employed.

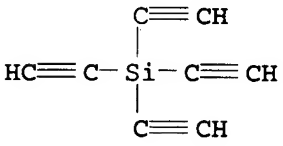
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 75

IT **1849-38-3P**
RL: PEP (Physical, engineering or chemical process); **PREP (Preparation)**; PROC (Process)
(silicon carbide thin films prepared from chemical **vapor deposition** of)

IT **1849-38-3P**
RL: PEP (Physical, engineering or chemical process); **PREP (Preparation)**; PROC (Process)
(silicon carbide thin films prepared from chemical **vapor deposition** of)

RN 1849-38-3 HCAPLUS

CN Silane, tetraethynyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L24 ANSWER 81 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:444624 HCAPLUS

DN 113:44624

TI Limits on selective tungsten deposition; the influence of reactants and reaction by-products on selectivity

AU Kwakman, L. F. T.; Vermeulen, W. J. C.; Granneman, E. H. A.; Hitchman, M. L.

CS ASM Microelectron. Technol. Cent., Bilthoven, Neth.

SO Proc. Eur. Conf. Chem. Vap. Deposition, 6th **(1987)**, 272-9.
Editor(s): Porat, Reuven. Publisher: Iscar Ltd., Nahariya, Israel.
CODEN: 56USAN

DT Conference

LA English

AB Selective growth of low-pressure chemical-vapor-deposited W is hampered by the interaction of the byproduct HF with SiO2 surfaces. This leads to the formation of nuclei on SiO2. A quant. dependence of the W nuclei d. on the HF concentration is exptl. determined These results are compared with a kinetic model, predicting an extreme sensitivity of W nuclei on the HF and WF6 concns. and on the deposition time.

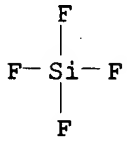
CC 56-6 (Nonferrous Metals and Alloys)

IT 7664-39-3P, Hydrofluoric acid, preparation **7783-61-1P**, Silicon fluoride (SiF4)
RL: FORM (Formation, nonpreparative); **PREP (Preparation)**
(formation of, in tungsten chemical-**vapor deposition**, selectivity interference by)

IT **7783-61-1P**, Silicon fluoride (SiF4)
RL: FORM (Formation, nonpreparative); **PREP (Preparation)**
(formation of, in tungsten chemical-**vapor deposition**, selectivity interference by)

RN 7783-61-1 HCAPLUS

CN Silane, tetrafluoro- (CA INDEX NAME)



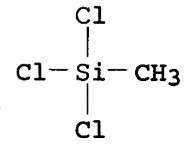
L24 ANSWER 82 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:443399 HCAPLUS
DN 113:43399
TI Chemical vapor deposition of silicon carbide
IN Brown, Duncan W.; Parsons, James D.
PA Advanced Technology Materials, Inc., USA
SO PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9003452	A1	19900405	WO 1989-US4148	19890925 <--
	W: JP				
	RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
	US 4923716	A	19900508	US 1988-248651	19880926 <--
PRAI	US 1988-248651	A	19880926 <--		

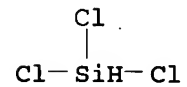
AB SiC is deposited by chemical-vapor deposition from a vapor source containing both Si and C in a single mol. species. The mol. species has general formula CnSinHm (n = 2-6 (inclusive),: m = 2n + 1 to 4n + 1 (inclusive)), and exhibits a primary pyrolysis mechanism producing reactive fragments containing both Si and C atoms. The Si and C atoms are codeposited onto the substrates in equal nos. and at equal rates producing stoichiometrically deposited SiC. Preferred mol. sources include H3SiCH2SiH3, a silacycloalkane of general formula (SiH2CH2)p (p = 2, 3, 4, or 5), and a cyclic structure of general formula (SiHCCH3))q (q = 4 or 5). Intermediates, e.g., methylsilylene and silaethene, are produced during pyrolysis at the deposition temperature
IC ICM C23C016-00
ICS C01B031-36
CC 49-5 (Industrial Inorganic Chemicals)
Section cross-reference(s): 76
IT 51067-84-6P, Silaethene **55544-30-4P**, Methylsilylene
RL: **PREP (Preparation)**
(intermediate, formation of, in silicon carbide chemical-**vapor deposition** from silicon- and carbon-containing heterocyclic compds.)
IT **55544-30-4P**, Methylsilylene
RL: **PREP (Preparation)**
(intermediate, formation of, in silicon carbide chemical-**vapor deposition** from silicon- and carbon-containing heterocyclic compds.)
RN 55544-30-4 HCAPLUS
CN Silylene, methyl- (9CI) (CA INDEX NAME)

H_3C-SiH

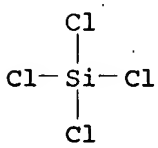
L24 ANSWER 83 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:184514 HCAPLUS
DN 112:184514
TI Analysis of the pyrolysis products of dimethyldichlorosilane in the chemical vapor deposition of silicon carbide in argon
AU Cagliostro, Domenick E.; Riccitiello, Salvatore R.; Carswell, Marty G.
CS Ames Res. Cent., NASA, Moffett Field, CA, 94035, USA
SO Journal of the American Ceramic Society (**1990**), 73(3), 607-14
CODEN: JACTAW; ISSN: 0002-7820
DT Journal
LA English
OS CASREACT 112:184514
AB A study of the products and reactions occurring during the chemical-vapor deposition of SiC from Me2SiCl2 in Ar is presented. Reaction conditions were 700-1100°, contact time .apprx.1 min, and pressure 1 atmospheric At these conditions, the gases that formed were mainly CH4, H2, SiCl4, HSiCl3, MeSiCl3. HCl might also be present, but was not determined The SiC solid that formed showed the presence of H and Cl as impurities, which might degrade the SiC properties. These impurities were eliminated slowly, even at 1100°, forming H2, HSiCl3, and SiCl4.
CC 57-2 (Ceramics)
IT 74-82-8P, Methane, preparation **75-79-6P**, Methyltrichlorosilane 1333-74-0P, Hydrogen, preparation **10025-78-2P**, Trichlorosilane **10026-04-7P**, Silicon tetrachloride
RL: PEP (Physical, engineering or chemical process); **PREP (Preparation)**; PROC (Process)
(formation of, in pyrolysis of methylchlorosilane for silicon carbide)
IT **75-78-5**, Dimethyldichlorosilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(pyrolysis of, products of, in chemical-**vapor deposition** of silicon carbide)
IT **75-79-6P**, Methyltrichlorosilane **10025-78-2P**, Trichlorosilane **10026-04-7P**, Silicon tetrachloride
RL: PEP (Physical, engineering or chemical process); **PREP (Preparation)**; PROC (Process)
(formation of, in pyrolysis of methylchlorosilane for silicon carbide)
RN 75-79-6 HCAPLUS
CN Silane, trichloromethyl- (CA INDEX NAME)



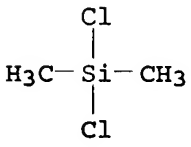
RN 10025-78-2 HCAPLUS
CN Silane, trichloro- (CA INDEX NAME)



RN 10026-04-7 HCAPLUS
CN Silane, tetrachloro- (CA INDEX NAME)



IT **75-78-5**, Dimethyldichlorosilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(pyrolysis of, products of, in chemical-**vapor deposition** of silicon carbide)
RN 75-78-5 HCAPLUS
CN Silane, dichlorodimethyl- (CA INDEX NAME)



L24 ANSWER 84 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:88946 HCAPLUS
DN 112:88946
TI Thermally depositing silicon nitride and silicon dioxide films onto a substrate
IN Dory, Thomas S.
PA Olin Corp., USA
SO U.S., 5 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4877651	A	19891031	US 1988-200203	19880531 <--
	WO 8911920	A1	19891214	WO 1989-US2226	19890522 <--
	W: AU, BB, BG, BR, DK, FI, HU, JP, KP, KR, LK, MC, MG, MW, NO, RO, SD, SU				
	RW: AT, BE, BF, BJ, CF, CG, CH, CM, DE, FR, GA, GB, IT, LU, ML, MR, NL, SE, SN, TD, TG				
	AU 8937735	A	19900105	AU 1989-37735	19890522 <--
	EP 417202	A1	19910320	EP 1989-907443	19890522 <--
	EP 417202	B1	19930203		
	R: BE, DE, FR, GB, IT, NL, SE				
	JP 03504618	T	19911009	JP 1989-506826	19890522 <--
PRAI	US 1988-200203	A	19880531 <--		
	WO 1989-US2226	A	19890522 <--		

AB In thermal chemical vapor deposition of Si3N4 or SiO2, di-tert-butylsilane and ≥1 other reactant gas (especially NH4 or O) is introduced into a reaction zone containing a substrate at 450-900° and 0.1-10 torr, and the gases are passed into contact with the substrate for a time sufficient to form a Si3N4 or SiO2 film.

IC ICM C23C016-34
ICS C23C016-40
INCL 427255000
CC 75-2 (Crystallography and Liquid Crystals)
Section cross-reference(s): 76
IT **30736-07-3P**, Di-tert-butylsilane
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and reaction of, in thermal chemical **vapor deposition** of silica and silicon nitride)
IT **30736-07-3P**, Di-tert-butylsilane
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and reaction of, in thermal chemical **vapor deposition** of silica and silicon nitride)
RN 30736-07-3 HCAPLUS
CN Silane, bis(1,1-dimethylethyl)- (CA INDEX NAME)

t-Bu—SiH_2—Bu-t

L24 ANSWER 85 OF 95 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:46211 HCAPLUS
DN 112:46211
TI Recovery of lower-boiling silanes in chemical vapor deposition of silicon
IN Arvidson, Arvid Neil; Pasek, David John
PA Hemlock Semiconductor Corp., USA
SO Eur. Pat. Appl., 9 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

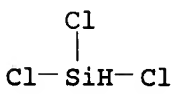
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 334664	A2	19890927	EP 1989-302944	19890323 <--
	EP 334664	A3	19900905		
	EP 334664	B1	19930804		
	R: DE, FR, GB				
	US 5118485	A	19920602	US 1988-173690	19880325 <--
	CA 1319586	C	19930629	CA 1989-591088	19890215 <--
	JP 01283817	A	19891115	JP 1989-73717	19890324 <--
	JP 2863774	B2	19990303		
PRAI	US 1988-173690	A	19880325 <--		

AB After deposition of semiconductor-grade Si on a Si substrate by decomposition of SiH3Cl, SiH2Cl2, or SiHCl3, the effluent gases from the deposition vessel are passed to a means for separating a mixture enriched in lower-boiling silanes from the effluent gases; the mixture enriched in lower-boiling silanes is combined with SiCl4 in proportions such that the combination contains <.apprx.1.0 mol H bonded to Si per mol total Si; the combination is passed through a solid catalyst (especially a tertiary amine on an organic resin) which disproportionates H-containing and Cl-containing silanes; a stream having decreased contents of SiH4, SiH3Cl, and SiH2Cl2 and increased content of SiHCl3 is produced; and the SiHCl3 is isolated and separated
IC ICM C23C016-24
ICS C23C016-44; C01B033-04
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 76
IT **10025-78-2P**, Trichlorosilane

RL: **PREP (Preparation)**
(recovery of, in chemical **vapor deposition** of silicon)

IT **10025-78-2P**, Trichlorosilane
RL: **PREP (Preparation)**
(recovery of, in chemical **vapor deposition** of silicon)

RN 10025-78-2 HCAPLUS
CN Silane, trichloro- (CA INDEX NAME)



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